IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

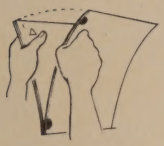
This PHOTOFACT Folder Set is

WIRE-SEALED FOR YOUR PROTECTION

to guarantee completeness of contents

DO NOT ACCEPT IF SEAL HAS BEEN BROKEN

TO OPEN ***JUST DO THIS:***

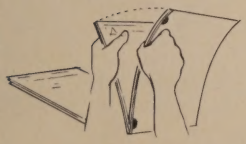


1

Take hold of the Set with both hands. Place your thumbs directly under the top wire-seal; then, divide the contents equally by putting your thumbs midway through the thickness of the Set. Now, pull the two sections apart at the top, firmly.

2

Repeat this process, pulling close to the wire-seal at the bottom, so that the set is now divided into two equal parts.



3

Continue this "pulling-apart" process with the section in which the wire-seals remain, dividing it in half.

4

Finally, remove the wire-seals left in the last section; this can easily be done with your fingernail or any sharp instrument.

Your "Safety-Sealed" PHOTOFACT Set is now ready for profit-making use . . .

IMPORTANT

Before you remove the Wire-Seal, check the contents of this envelope with the listing on the front of the envelope. If any part is missing, your Howard W. Sams distributor will replace the entire PHOTOFACT set IF the Wire-Seal has not been damaged.

The PHOTOFACT® Servicer

SET 513 ★ *Published for all users of Howard W. Sams' Photofact Folders* ★ JAN. 1961

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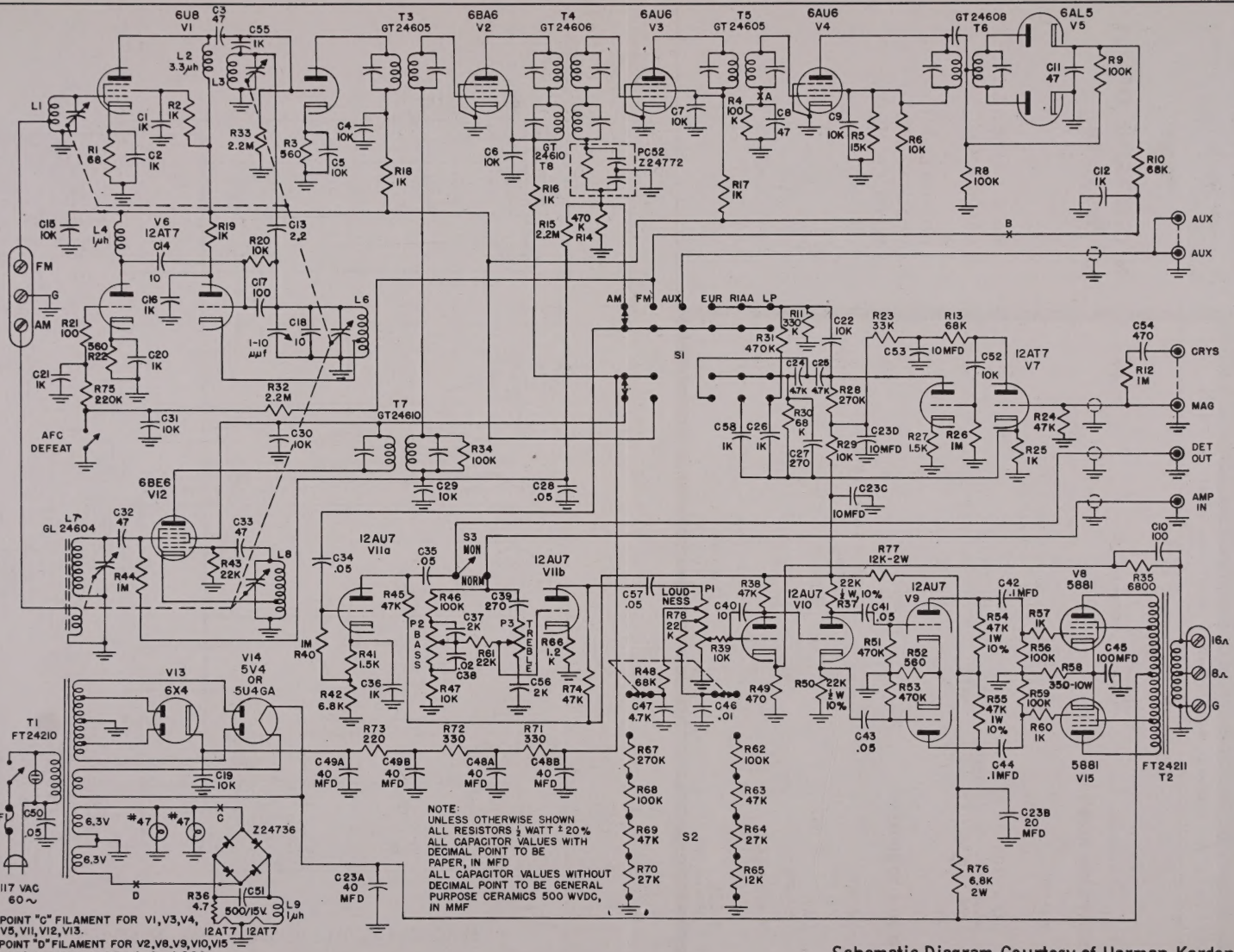
This Servicer provides you with essential data on other models or special equipment not covered in standard PHOTOFACT folders. The schematics and supplementary data included here will be of valuable help to you in servicing this equipment.

IN THIS ISSUE OF THE SERVICER:

Harman Kardon
Model D-1000

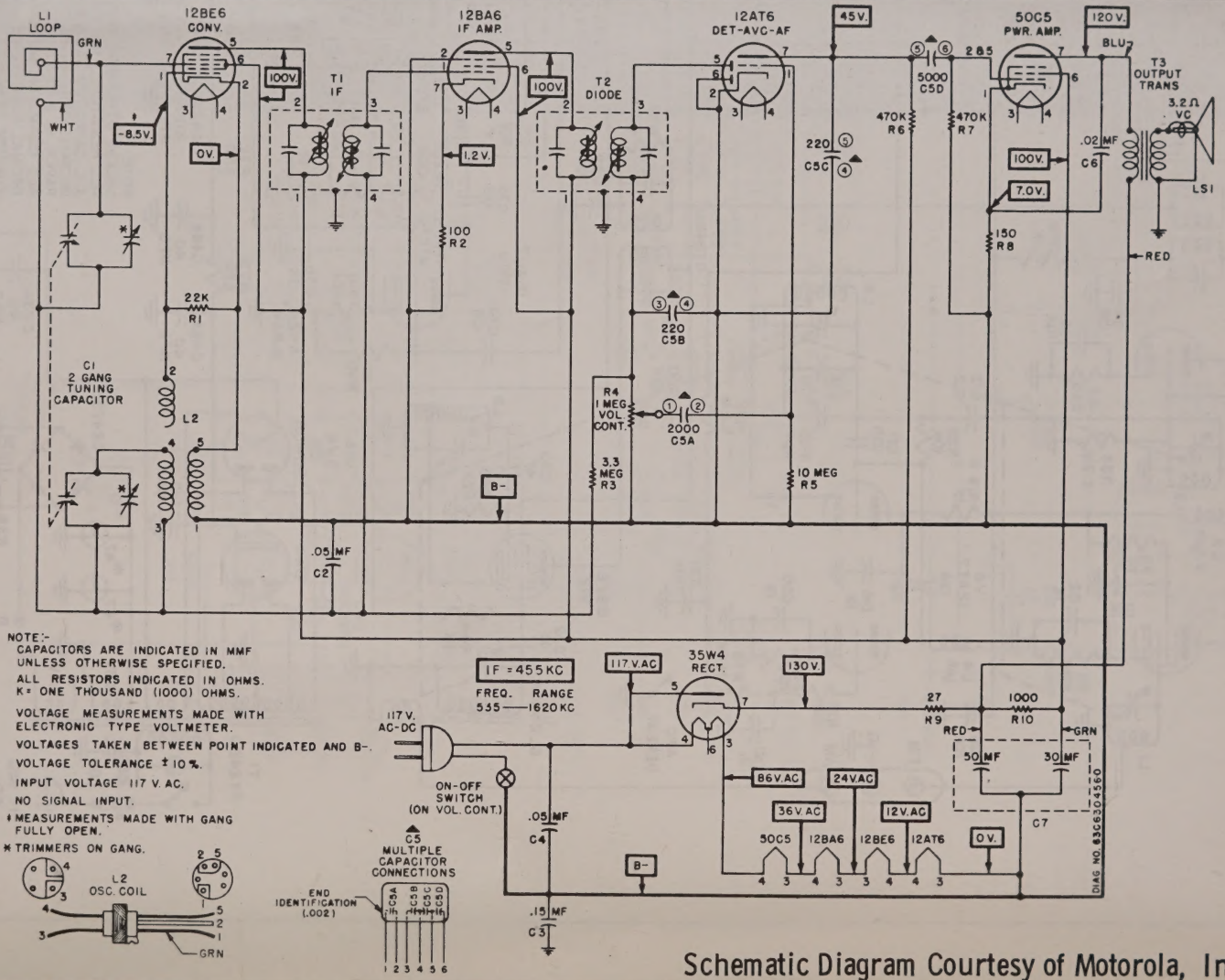
Motorola Models
92-531, 92-532,
92-533 (CH. HS-404)



HARMAN KARDON MODEL D-1000

Schematic Diagram Courtesy of Harman Kardon, Inc.

MOTOROLA MODELS 92-531, 92-532, 92-533 (CH. HS-404)



NOTE:-
CAPACITORS ARE INDICATED IN MMF UNLESS OTHERWISE SPECIFIED.
ALL RESISTORS INDICATED IN OHMS. K= ONE THOUSAND (1000) OHMS.
VOLTAGE MEASUREMENTS MADE WITH ELECTRONIC TYPE VOLTMETER.
VOLTAGES TAKEN BETWEEN POINT INDICATED AND B-.
VOLTAGE TOLERANCE ± 10%.
INPUT VOLTAGE 117 V. AC.
NO SIGNAL INPUT.
♦ MEASUREMENTS MADE WITH GANG FULLY OPEN.
✱ TRIMMERS ON GANG.

Schematic Diagram Courtesy of Motorola, Inc.

PHOTOFACT® Folder with CIRCUITRACE®

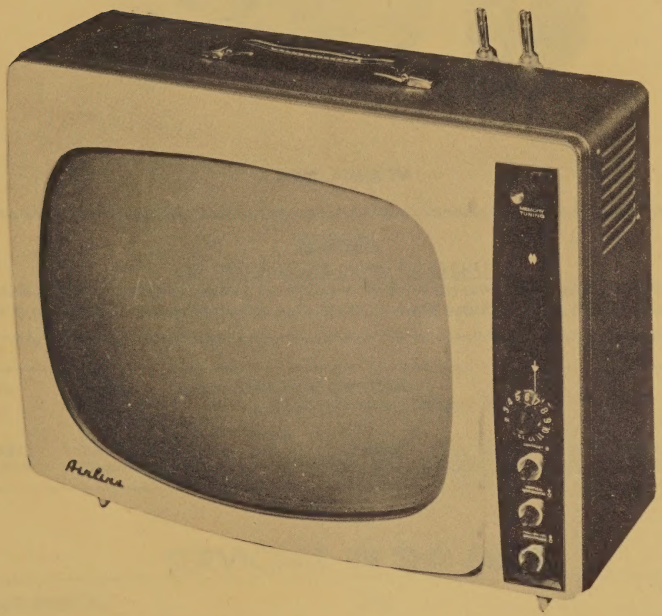
AIRLINE MODELS
GTM-4223A, GTM-4323A

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

AIRLINE MODELS
GTM-4223A, GTM-4323A



AIRLINE MODELS
GTM-4223A, GTM-4323A

MODEL GTM-4223A

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

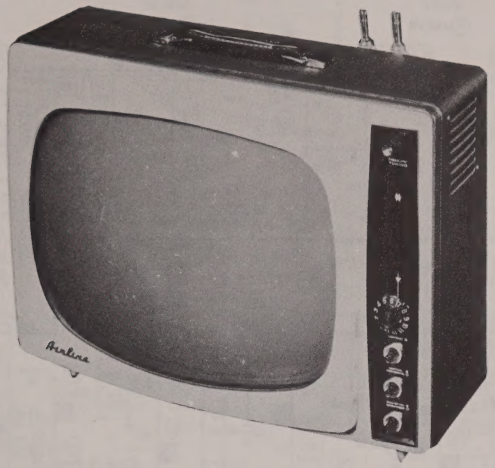
DATE 1–61 SET 513 FOLDER 1

SET 513 FOLDER 1

PHOTOFACT® Folder with CIRCUITRACE®

AIRLINE MODELS GTM-4223A, GTM-4323A

AIRLINE MODELS
GTM-4223A, GTM-4323A



MODEL GTM-4223A

CAUTION

ONE SIDE OF AC LINE CONNECTED TO CHASSIS.

Care should be exercised when connecting test equipment or physically contacting chassis. Isolation devices employed by manufacturer should be checked and properly connected before returning receiver to owner.

TRADE NAME	Airline Models GTM-4223A, GTM-4323A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Avenue, Chicago, Illinois
TYPE SET	Television Receiver
TUBES	VHF - Fifteen, UHF - Sixteen
POWER SUPPLY	105 - 125 Volts AC, 60 Cycle RATING VHF: 135 Watts, 1.3 Amp. @ 117 Volts AC
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Safety glass may be removed for cleaning by removing chassis and picture tube.

FUSE

A 3/4 Amp. S/B fuse is used for horizontal sweep circuit protection. (For location, see "Tube Placement Chart".)

FUSE DEVICE

A Circuit Breaker is used for low voltage power supply protection, and may be reset by depressing the reset button. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

To touch up the VHF Oscillator, it is necessary to remove the chassis. (See "Disassembly Instructions".)

AGC

A jumper wire shunting R9 may or may not be used, depending on signal strength. (See "TV Schematic".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Frequency Slug (B2). (For location, see "Tube Placement Chart".)

WIDTH

A jumper wire shunting C86 may or may not be used, depending on width requirements. (See "TV Schematic".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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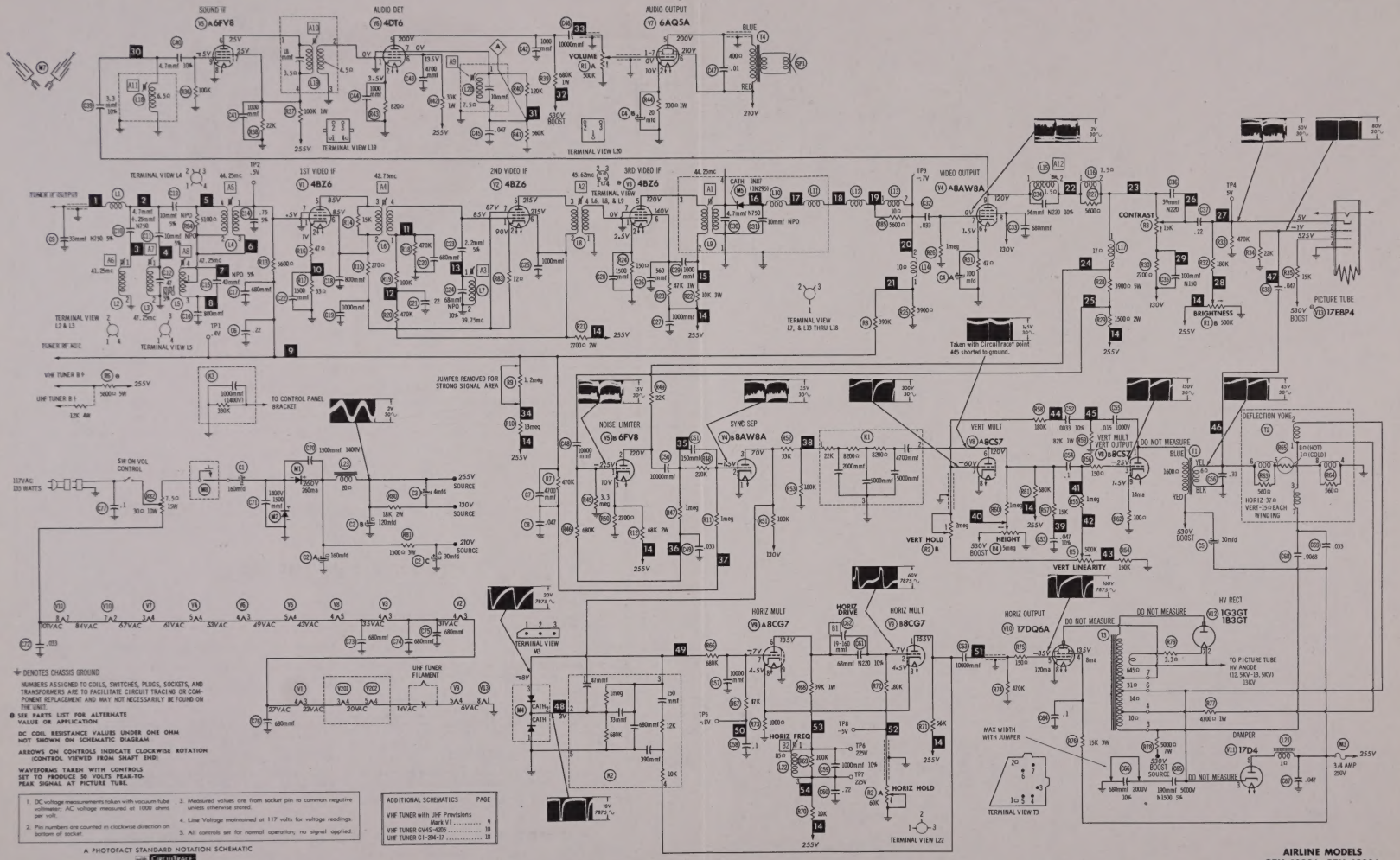
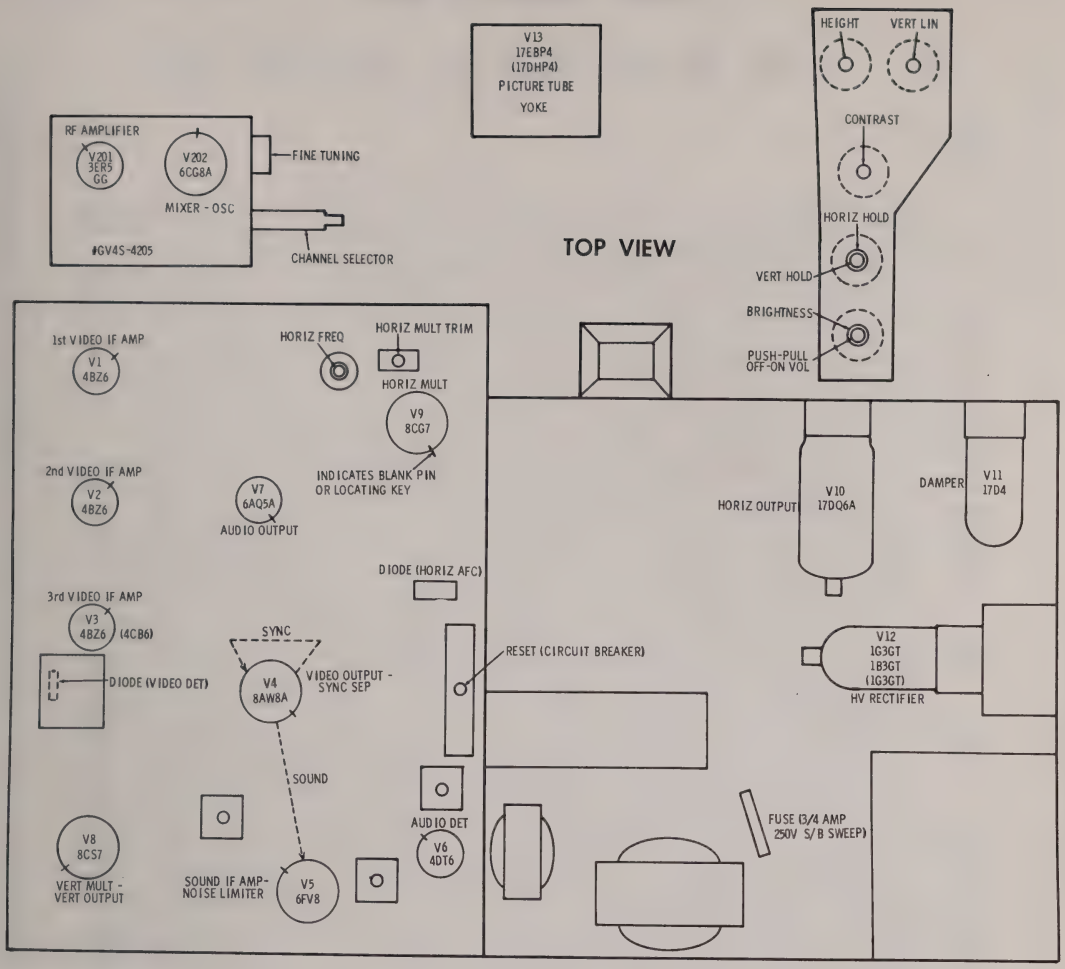
the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 513 FOLDER 1


SOUND IF
V5 6FV8
AUDIO DET
V6 6DT6
AUDIO OUTPUT
V7 6AQ5A
VOLUME
BLUE
RED
210V
TERMINAL VIEW L19
TERMINAL VIEW L20
TERMINAL VIEW L4
TERMINAL VIEW L2 & L3
TERMINAL VIEW L5
TUNER IF OUTPUT
TUNER RF AGC
1ST VIDEO IF
V1 4BZ6
2ND VIDEO IF
V2 4BZ6
3RD VIDEO IF
V3 4BZ6
TERMINAL VIEW L6, L8, & L9
CATH IND
V5 12K799
TERMINAL VIEW L7, & L13 THRU L18
VIDEO OUTPUT
V4 8AW8A
CONTRAST
BRIGHTNESS
PICTURE TUBE
V13 17EBP4
Taken with Circuitracer, point #45 shorted to ground.
VHF TUNER B+
UHF TUNER B+
TO CONTROL PANEL BRACKET
JUMPER REMOVED FOR STRONG SIGNAL AREA
NOISE LIMITER
V5 6FV8
SYNC SEP
V4 8AW8A
VERT MULT
V8 8BC57
VERT MULT VERT OUTPUT
V9 8BC57
DO NOT MEASURE
VERT HOLD
VERT LINEARITY
DEFLECTION YOKE
HORIZ-37 Ω
VERT-15 Ω EACH WINDING
BLUE
YEL
GRN
BLK
RED
530V BOOST
117VAC 135 WATTS
SW ON VOL CONTROL
255V SOURCE
130V SOURCE
210V SOURCE
101VAC
84VAC
67VAC
61VAC
53VAC
49VAC
43VAC
35VAC
31VAC
27VAC
20VAC
14VAC
6VAC
UHF TUNER FILAMENT
HORIZ MULT
V9 8CG7
HORIZ DRIVE
HORIZ FREQ
HORIZ HOLD
HORIZ OUTPUT
V10 17DQ6A
HV RECT
V12 1G3GT 1B3GT
TO PICTURE TUBE HV ANODE (12.5KV-13.9KV) 13KV
MAX WIDTH WITH JUMPER
DAMPER
V11 17D4
3/4 AMP 250V
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END).
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltage measured at 1000 ohms per volt.
2. Pin numbers are counted in clockwise direction on bottom of socket.
3. Measured values are from socket pin to common negative unless otherwise stated.
4. Line Voltage maintained at 117 volts for voltage readings.
5. All controls set for normal operation; no signal applied.
ADDITIONAL SCHEMATICS PAGE
VHF TUNER with UHF Provisions Mark VI 9
VHF TUNER GV45-4205 10
UHF TUNER G1-204-17 18
A PHOTOFACT STANDARD NOTATION SCHEMATIC with CIRCUITRACE
©Howard W. Sams & Co., Inc 1961
AIRLINE MODELS GTM-4223A, GTM-4323A

TUBE PLACEMENT CHART



AIRLINE MODELS
GTM-4223A, GTM-4323A

TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

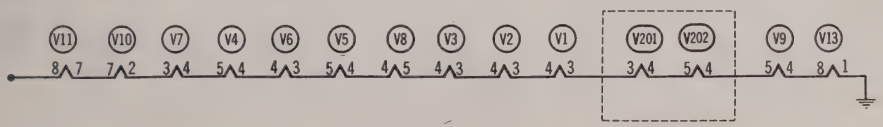
POWER SUPPLY FAILURE
No raster, no sound Circuit Breaker, Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V9, V10, V11, V12, V13
No vertical deflection V8
Poor vert. linearity or foldover V8
Poor horiz. linearity or foldover V9, V10, V11
Narrow picture V9, V10, V11, Rectifiers, (B+)
Vert. off freq. V8
Horiz. off freq. Diode (Horiz AFC), V9

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V13
Has pic, no sound V5, V6, V7

SYNC FAILURE
No vert. sync V4
No horiz. sync V4
No vert. or horiz. sync V4

This receiver employs tubes used in a series filament network, an open filament in any tube will cause the set to be inoperative. (See circuit below.)



FOLDER 1

A Howard W. Sams CIRCUITRACE Photo

TV PRINTED BOARD

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 3544, 2545

VIDEO IF ALIGNMENT

USE AN ISOLATION TRANSFORMER TO PROTECT THE TEST EQUIPMENT.
Connect the negative lead of a 4 volt bias supply to point TP-1. Positive to chassis.
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	High side thru .001mfd to TP-2. Low side to chassis.	Not used	44.25MC (Unmod.)	10	Use VTVM DC probe to TP-3. Common to chassis.	A1	Adjust for maximum deflection.
2.	"	"	45.62MC	"	"	A2	"
3.	"	"	39.75MC	"	"	A3	Adjust for MINIMUM deflection.
4.	"	"	42.75MC	"	"	A4	Adjust for maximum deflection.
5.	"	44MC (10MC Swp.)	39.75MC 41.25MC 42.25MC 43.0MC 45.0MC 45.75MC	"	Vert. Amp. of scope to TP-3. Low side to chassis.		Check for response similar to Fig. 1. If necessary, retouch A1, A2 and A4 for desired response.
6.	High side thru .001mfd to pin 9 (grid) of Mixer. Low side of chassis.	Not used	44.25MC	"	Use VTVM DC probe to TP-3. Common to chassis.	Mixer Plate Coil	Adjust for maximum deflection.
7.	"	"	"	"	"	A5	"
8.	"	"	41.25MC	"	"	A6	Adjust for MINIMUM deflection.
9.	"	"	47.25MC	"	"	A7	"
10.	"	"	"	"	"	A8	"
11.	"	44MC (10MC Swp.)	41.25MC 42.25MC 43.0MC 45.0MC 45.75MC	"	Vert. Amp. of scope to TP-3. Low side to chassis.		Check for response similar to Fig. 2. If necessary, retouch Mixer Plate Coil and A5 for desired response.

SOUND IF ALIGNMENT

Tune in a TV signal, preferably with a test pattern and tone signal. Adjust Fine Tuning for best reception. Set the Volume control so that the sound is audible. Adjust A9 for maximum sound output. Connect a short clip lead from pin 1 (grid) of the 3rd Video IF amplifier to chassis. Connect the DC probe of the VTVM to point (A). Common to chassis. Adjust A10 for maximum negative voltage on the VTVM. Remove the clip lead from the circuit.
Disconnect the antenna lead and place near the antenna terminals so that the signal coupled to the receiver produces a very weak picture. A hiss will be noticed in the sound. Adjust A11 for maximum negative voltage on the VTVM. If the VTVM indicates a broad response while adjusting A11, move the antenna lead farther from the antenna terminals.

4.5MC TRAP ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
12.	High side thru .001mfd to TP-3. Low side to chassis.	4.5MC (Unmod.)	Any non-interfering channel.	Demodulator probe thru .001mfd to TP-4. Common to chassis.	A12	Adjust for MINIMUM deflection.

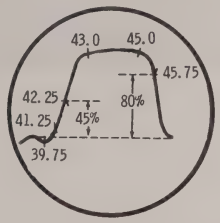


FIG. 1

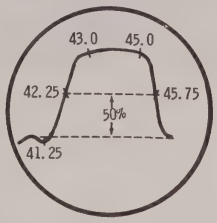
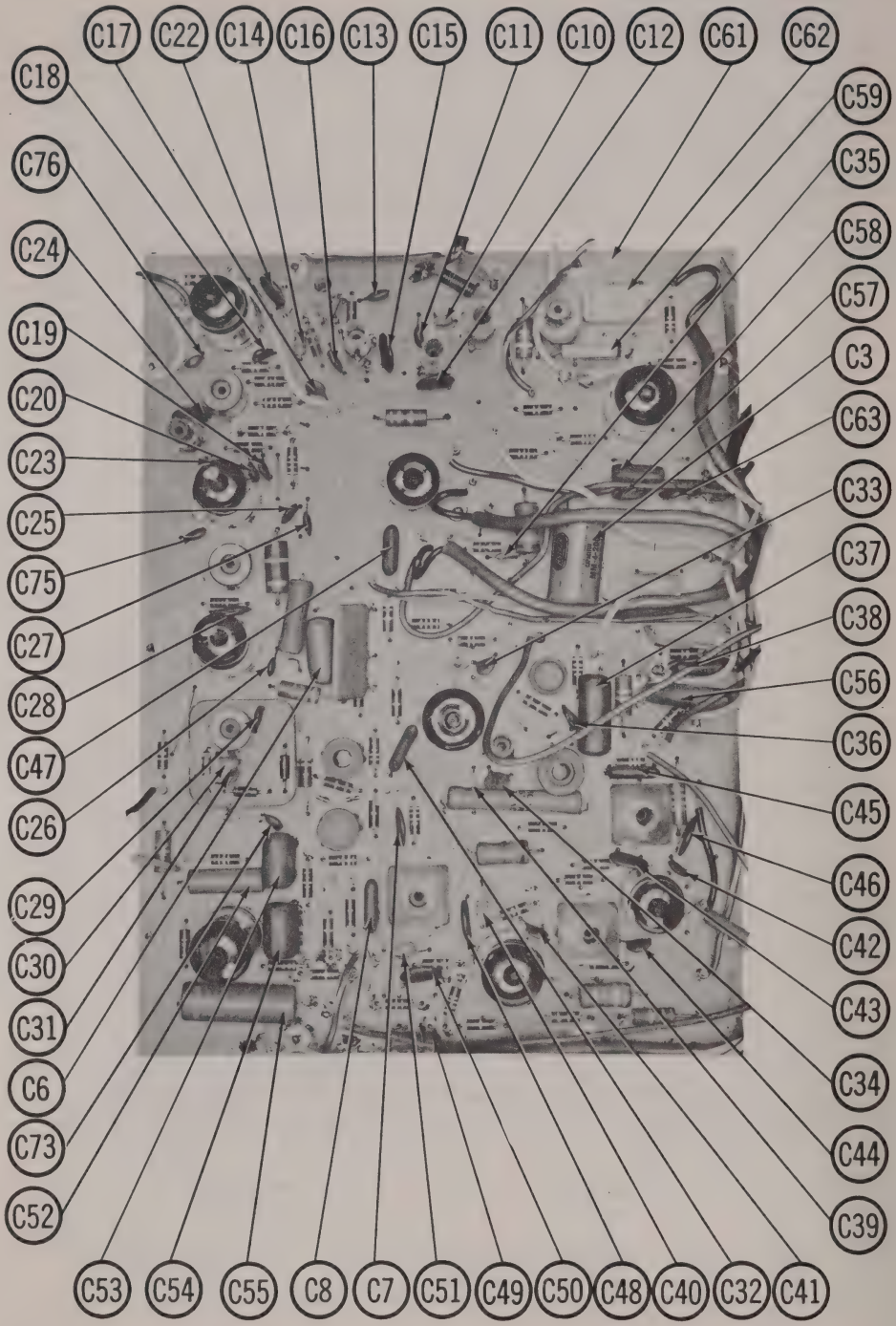
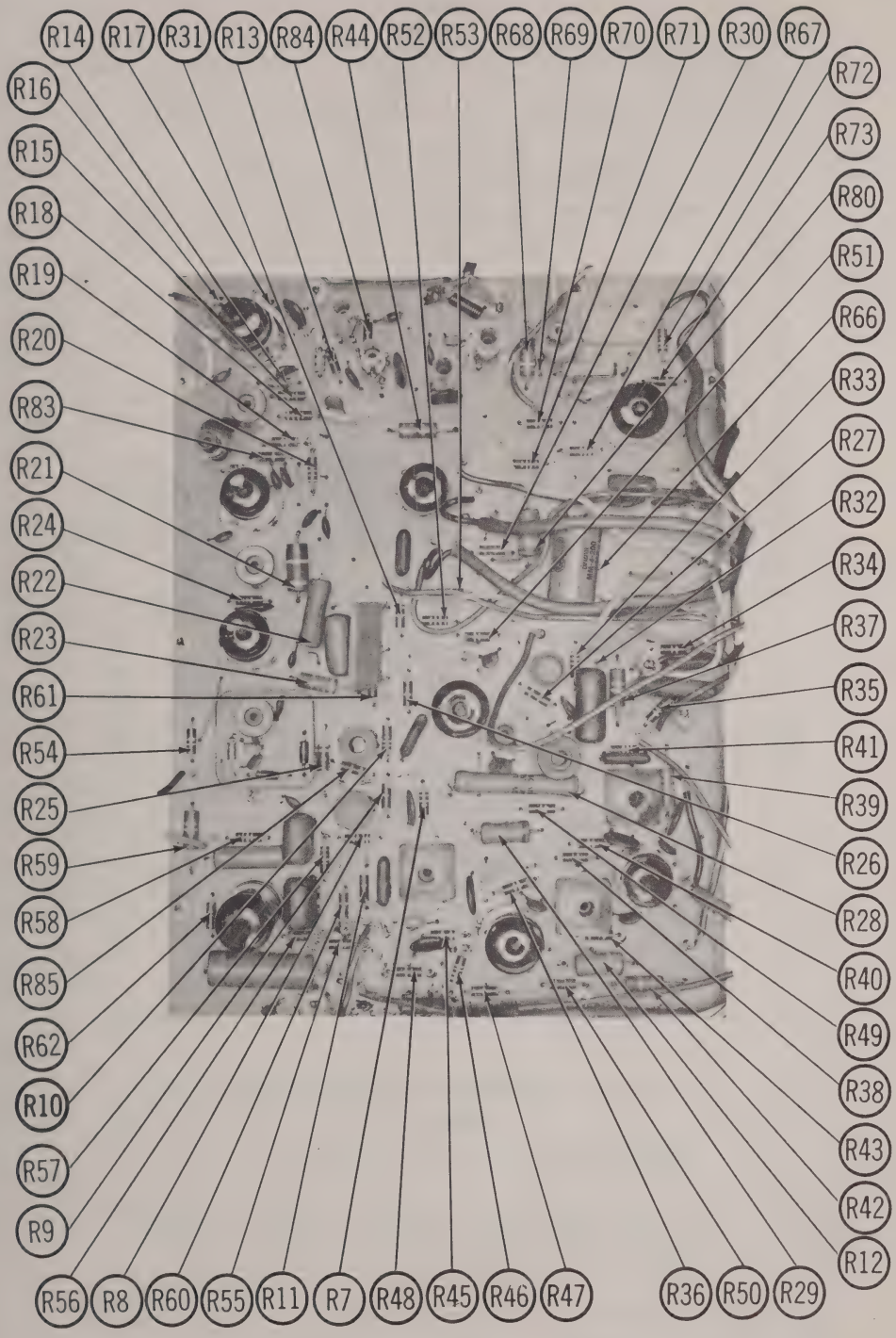


FIG. 2



TV PRINTED BOARD - CAPACITOR IDENT.



TV PRINTED BOARD - RESISTOR IDENT.

TUNER PARTS LIST AND DESCRIPTIONS

MARK VI

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •					
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	3EA5	V202	Mixer-Osc.	6CL8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	20		NPO-DI 20	DTZ-20	C10Q2C	CCTO-200	CNO-422	10TCC-Q20
C202	100		NPO-DI 100	DTZ-100	C10T1C	CCTO-101	CNO-310	10TCC-T10
C203	75 N1500					*		
C204	1000		EF-001	MFT-1000		CCF-102	CT280A	
C205								
C206	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C207	.47 10%		NPO-SI .5	TCZ-R5				
C208	3 10%		NPO-SI 3.0	TCZ-3R3	C10V3C	CCTO-3R3	CNO-533	10TCC-V33
C209	68		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C210	59							
C211								
C212	1000		EF-001	MFT-1000		CCF-102	CT280A	
C213	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C214	1000		EF-001	MFT-1000		CCF-102	CT280A	
C215	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C216	.82 10%							
C217	2.2 N1500							
C218	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C219	15 NPO		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C220	15 NPO		NPO-DI 15	DTZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C221	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C222	800		BPD-0008	DD-801	L10T8	CCD-801	GP382	10TS-T80
C223	1000		EF-001	MFT-1000		CCF-102	CT280A	
C224	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C225	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10
C226	1000		EF-001	MFT-1000		CCF-102	CT280A	
C227	1000		EF-001	MFT-1000		CCF-102	CT280A	
C228	1000		EF-001	MFT-1000		CCF-102	CT280A	
C229	1000		DI-1000	DD-102	BYA10D1	CCD-102	GP210	10TS-D10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	27K	
R202	47K	
R203	100K	
R204	470Ω	

ITEM No.	RATING	REMARKS
R205	390Ω	
R206	1800Ω	
R207	100K	
R208	1800Ω	

ITEM No.	RATING	REMARKS
R209	560Ω	
R210	15K	
R211	27K 1W	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA	
K201	Antenna Filter	470mmf, .3-1meg	32A254358-3	Centralab Sprague	RC-471 AC1-1
K202	Antenna Filter	470mmf, .3-1meg	32A254358-3	Centralab Sprague	RC-471 AC1-1

TUNER ALIGNMENT INSTRUCTIONS

MARK VI

Suggested Alignment Tools: GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532

VHF OSCILLATOR ALIGNMENT

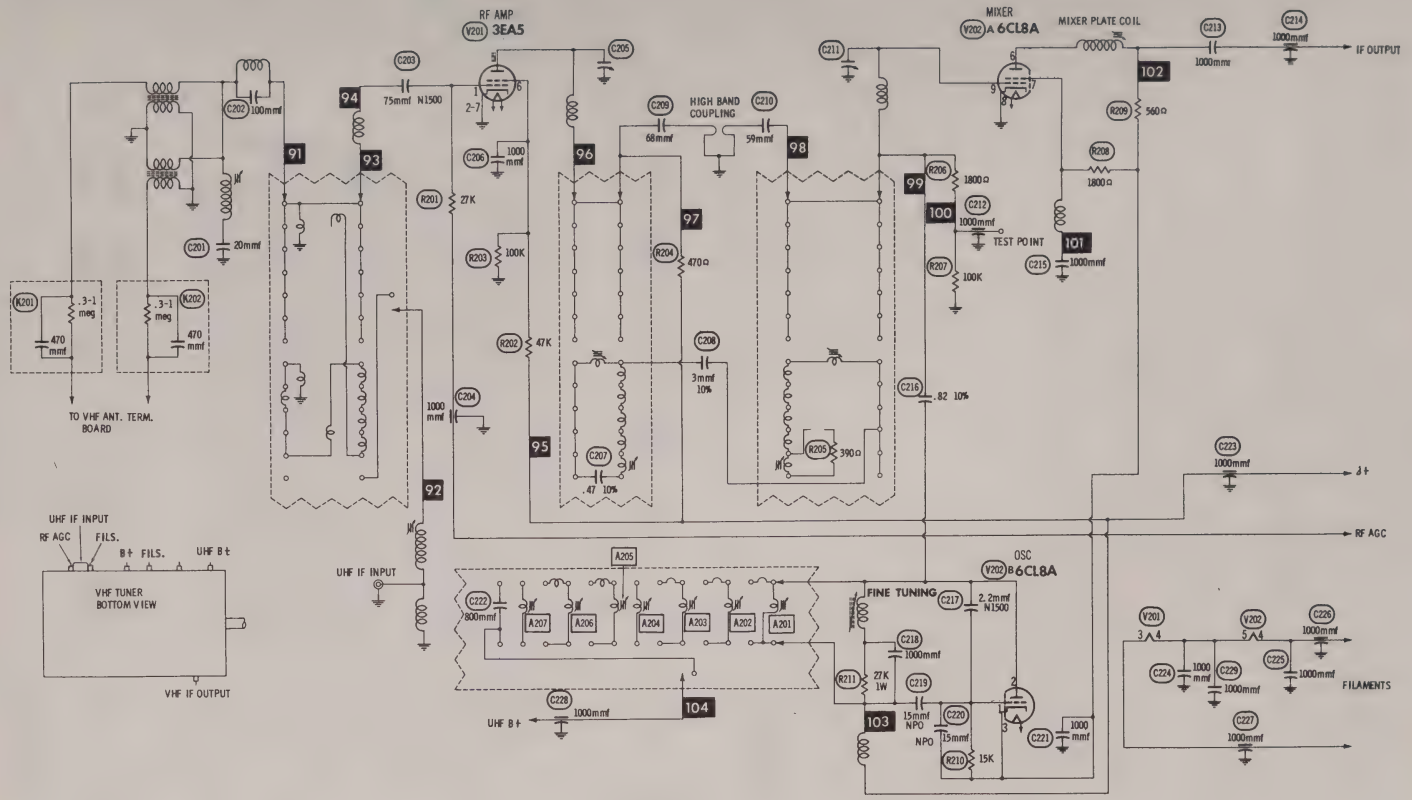
Set the Fine Tuning to the center of its range. Set the Channel Selector to the highest channel operating in the area and adjust the appropriate slug for best picture and sound. Each channel operating in the area must be adjusted for in descending order from the highest to the lowest. A201 for channels 13 and 12, A202 for channels 11 and 10, A203 for channels 9 and 8, A204 for channel 7, A205 for channels 6 and 5, A206 for channels 4 and 3, and A207 for channel 2.
If difficulty is experienced in adjusting for channels 12, 10, 8, 5 or 3, adjust the correct coil by expanding or compressing coil turns.

VHF RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

UHF TUNER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.



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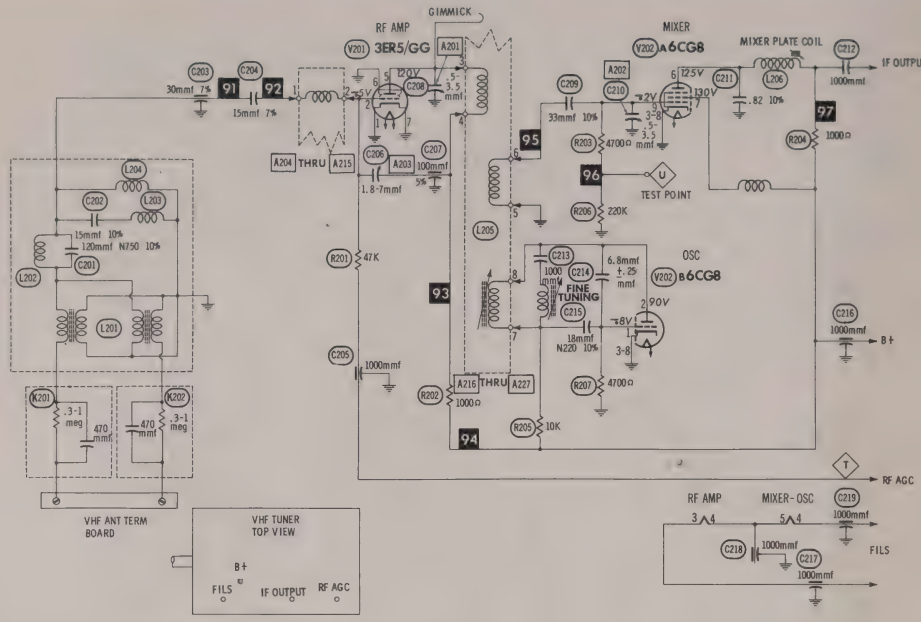
VHF TUNER with UHF Provisions - MARK VI



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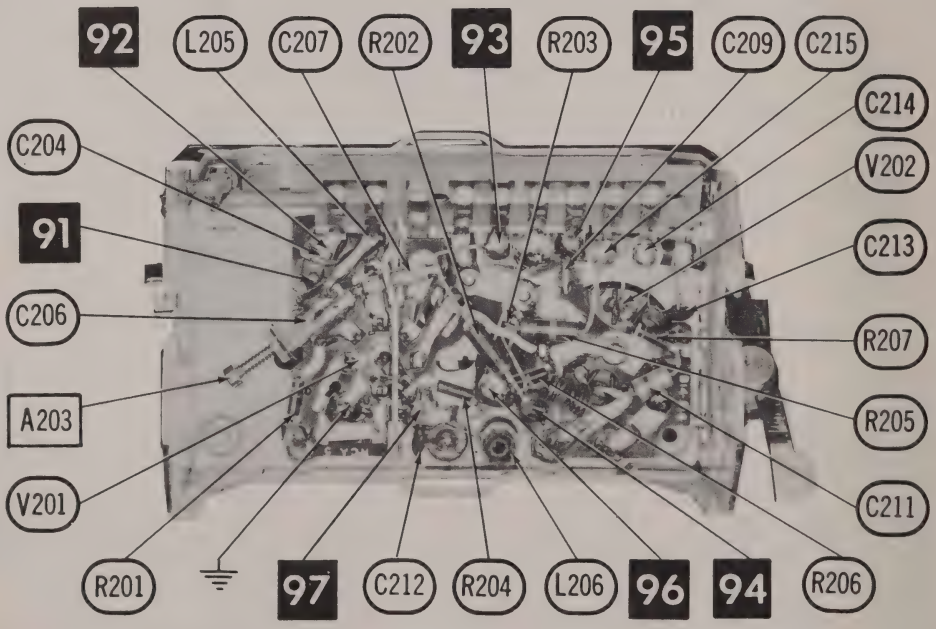
VHF TUNER GV4S-4205



A Howard W. Sams CIRCUITRACE Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER GV4S-4205-BOTTOM VIEW

VHF TUNER ALIGNMENT INSTRUCTIONS

GV4S-4205

PRE-ALIGNMENT INSTRUCTIONS

Use an ISOLATION TRANSFORMER to PROTECT the Test Equipment.
The high voltage lead should be securely taped and kept away from the chassis.
Allow a 20 minute warm-up period for the receiver and test equipment.
Suggested Alignment Tools: A201, A202, A203 .... GENERAL CEMENT #5000, 5003, 5014, 5015, 5016, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A216 thru A227 ..... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8987
WALSCO #2531

VHF RF AND MIXER ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Coils not containing adjustable cores are adjusted by expanding or compressing coil turns.
Connect the negative lead of a 2.5 volt bias supply to point Ⓣ. Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	195MC	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point Ⓓ. Low side to chassis.	A201, A202, A203	Adjust A201 and A202 for maximum amplitude and symmetry with markers as shown in Fig. 201. Increase bias for MINIMUM amplitude of response curve. Without changing the bias adjust A203 to obtain MINIMUM response on the scope. Recheck A201.
2.	"	"	213MC	211.25MC 215.75MC	13	"	A204	Adjust for maximum amplitude of response similar to Fig. 201. Adjust by expanding or compressing coil turns.
			207MC	205.25MC 209.75MC	12		A205	
			201MC	199.25MC 203.75MC	11		A206	
			195MC	193.25MC 197.75MC	10		A207	
			189MC	187.25MC 191.75MC	9		A208	
			183MC	181.25MC 185.75MC	8		A209	
			177MC	175.25MC 179.75MC	7		A210	
			85MC	83.25MC 87.75MC	6		A211	
			79MC	77.25MC 81.75MC	5		A212	
			69MC	67.25MC 71.75MC	4		A213	
			63MC	61.25MC 65.75MC	3		A214	
			57MC	55.25MC 59.75MC	2		A215	

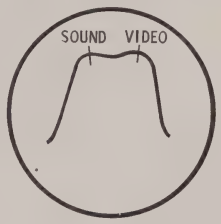


FIG.201

VHF OSCILLATOR ALIGNMENT

Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The sweep generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Use 10MC sweep unless otherwise noted.
Connect the negative lead of a 4.5 volt bias supply to point Ⓣ. Positive to chassis.

	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
3.	Two 120Ω Carbon Resistors	Across antenna terminals with 120Ω in each lead.	213MC	211.25MC 215.75MC	13	Vert. Amp. thru 47K across Video Detector load.	A216	Adjust to place sound marker in trap notch as in Fig. 202. Video marker should fall at 50%.
			207MC	205.25MC 209.75MC	12		A217	
			201MC	199.25MC 203.75MC	11		A218	
			195MC	193.25MC 197.75MC	10		A219	
			189MC	187.25MC 191.75MC	9		A220	
			183MC	181.25MC 185.75MC	8		A221	
			177MC	175.25MC 179.75MC	7		A222	
			85MC	83.25MC 87.75MC	6		A223	
			79MC	77.25MC 81.75MC	5		A224	
			69MC	67.25MC 71.75MC	4		A225	
			63MC	61.25MC 65.75MC	3		A226	
			57MC	55.25MC 59.75MC	2		A227	

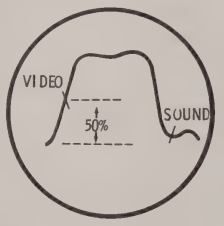


FIG.202

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	1st Video IF Amp.	4BZ6
V2	2nd Video IF Amp.	4BZ6
V3	3rd Video IF Amp.	4BZ6 (4CB6) *
V4	Video Output - Sync Sep.	6AW8A
V5	Sound IF Amp- Noise Limiter	6FV8
V6	Audio Det.	4DT6
V7	Audio Output	6AQ5A
V8	Vert. Mult. - Vert. Output	8CG7
V9	Horiz. Mult.	8CG7
V10	Horiz. Output	17DQ8A
V11	Damper	17D4
V13	HV Rectifier	1G3GT/1B3GT (1G3GT) *

* Alternate

PICTURE TUBE

ITEM No.	REPLACEMENT DATA: AIRLINE PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
V13	17EBP4 / 17DHP4					

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP	VOLT.	REPLACEMENT DATA: AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	160	200	218V028H01	AFHS8-37-25	XA0266	PFP122	TM8-1480	TVL-1473	
C2A	▲160	85	218V025H36	AFHS3-29-98		FP228.3		TVLS-3625.5*	
B	▲120	150				W9427			
C	▲30	300							
C3	4	250	218V025H37	PRS1550	BBR4-250	TC697	TD-4-250	TVA-1501	
C4A	100	15	218V037H01	PRS3220	BBR100-6	TT5X100	TDLD-14	TVAS-2459 *	
B	20	25			BBR25-25	TT25X20			
C5	50	450	218V009H02	PRS1740	BR3045	TC77	TD-30-450	TVA-1711	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	.22 200V		P288N-22		CUB2P22	2DP-4-224	GEM-2023	2TM-P10
C7	4700		BPD-0047	DD-473	BYA10DM7M	CCD-472	B-247	56K-D47
C8	.047 200V		P288N-047	DD-503	CUB3S47	4DP-3-473	GEM-4147	2TM-S47
C9	33 N750 5%			DTN-33	C10Q33U	CM-19B-330J	CN7-433	10TCU-Q33
C10	4.7 N750 ± 25mmf			DTZ-5	C10V4R7		CN7-547	10TCU-V50
C11	10 NPO 5%		NPO-DI 10	DTZ-10	C10Q1C	CM-19B-100J	CNO-410	10TCC-Q10
C12	47 NPO 5%			DTZ-47	C10Q47C	CM-19B-470J	CNO-447	10TCC-Q47
C13	100 NPO 5%			DTZ-10	C10Q1C	CM-19B-100J	CNO-410	10TCC-Q10
C14	.75	5%	Pt. #217V007A58					
C15	43 NPO 5%			TCZ-43	C10Q43C	CM-19B-430J		MS-443
C16	600		BPD-0008	DD-601	L20T8	CCD-601	B-382	10TS-T60
C17	680		BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C18	800		BPD-001	DD-801	L20T8	CCD-801	B-383	10TS-T80
C19	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C20	680		BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C21	.22 400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C22	1500		BPD-0015	DD-152	BYA10DI5	CCD-152	B-215	5HK-D15
C23	2.2 5%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C24	68 NPO 10%		NPO-DI 68	DTZ-68	C10Q68C	CCTO-680	CNO-468	10TCC-Q68
C25	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C26	560		DI-560	DD-561	L10T56	CCD-561	B-356	10TS-T56
C27	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C28	1500		BPD-0015	DD-152	BYA10DI5	CCD-152	B-215	5HK-D15
C29	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C30	4.7 N750			DTN-5	C10V5U	CCTN-050	CN7-547	10TCU-V50
C31	10 NPO		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C32	.033 200V		P288N-033	DD-303	CUB3S33	4DP-3-333	GEM-4133	6TM-S33
C33	680		BPD-00068	DD-681	BYA10T68	CCD-680	B-368	10TS-T68
C34	56 N220 10%					*		10TCR-Q56
C35	100 N150					*		10TCP-710
C36	39 N220		Pt. #215V013A90			*		10TCR-Q39
C37	.22 400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C38	.047 200V		P288N-047	DD-503	CUB3S47	4DP-3-473	GEM-4147	2TM-S47
C39	3.3 10%		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C40	4.7 10%		NPO-SI 4.7	TCZ-4R7	C10V47C	CCTO-4R7	CNO-547	10TCC-V47
C41	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C42	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C43	4700		BPD-0047	DD-473	BYA10D47M	CCD-472	B-247	5HK-D47
C44	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C45	.047 200V		P288N-047	DD-503	CUB3S47	4DP-3-473	GEM-4147	2TM-S47
C46	10000		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C47	.01 600V		P688N-01	DE-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C48	10000		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C49	.033 200V		P288N-033	DD-303	CUB3S33	4DP-3-333	GEM-4133	6TM-S33
C50	10000		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C51	150		DI-150	DD-151	L10T15	CCD-151	B-315	10TS-T15
C52	.0033 600V 10%		V64C9D33-10%		PM6S33	6DP-1-332	GEM-1623S	6TM-D33
C53	.047 600V 10%		V64C9S47-10%		PM6S47	6DP-3-473	GEM-1615	6TM-S47
C54	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C55	.015 1000V		PI088N-015	DD6-153	CUB10S15	10DP-4-153	GEM-10115	10TM-S15
C56	.33 200V		P288N-33		PM4P33	4DP-5-334	GEM-2033	2TM-P33
C57	10000		BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C58	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C59	1000 10%		1469-001		5RSD1	CCD-102	MCB255	MS-E
C60	.22 400V		P488N-22		CUB4P22	4DP-5-224	GEM-4022	4TM-P22
C61	68 N220 10%					*		10TCR-Q68
C62	19-180		Pt. #217V505H01			583		
C63	10000			BPD-01	DD-103	BYA10SI	CCD-103	B-110	5HK-S10
C64	.1 400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C65	190 500V N1500 5%						VCM-20-681K		
C66	680 2000V 10%								
C67	.047 400V			P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C68	.0068 600V			P688N-0068	D6-682	CUBD6S	6DP-1-682	GEM-6268	6TM-D68
C69	.033 600V			P688N-033	DD-303	CUB6S33	6DP-2-333	GEM-6133	6TM-S33
C70	1500 1400V			HVD-15-1500	DD30-152	HVB30D15	3CCD-152	2HV-215	30GA-D15
C71	1500 1400V			HVD-15-1500	DD30-152	HVB30D15	3CCD-152	2HV-215	30GA-D15
C72	.033 600V			P688N-033	DD-303	CUB6S33	6DP-2-333	GEM-6133	6TM-S33

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C73	680		BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C74	680		BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C75	680		BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C76	680		BPD-00068	DD-681	BYA10T68	CCD-681	B-368	10TS-T68
C77	.1 600V		P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING: RESISTANCE	WATTS	REPLACEMENT DATA: AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	500K		270V078H01	F1-40				Brightness
B	500K			RPL-41	RTV-699		▲UE4115-S	Volume
C	Switch			Not Req.				Push-Pull Off-On
R2A	60K		270V077H01	F1-30				Horiz. Hold
B	2meg			R2-67	RTV-700	† QJ-1261	▲UE4116	Vert. Hold
R3A	15K		270V080H01	AB-20	A47-15K-S	Bll-118	U26	Contrast
B	Shaft			AK-8	RS-3/16	SK9	Da-37	
R4	5meg		270V038H06	TT-67	B47-5meg-S	HLC5	PTA58L	Height
R5A	500K		270V038H05	TT-59	B47-500K-S	Bll-133	PTA55L	Vert. Linearity
B	Shaft			Not Req.	Not Req.	TM4	Not Req.	

† "CONCENTRIKIT" Equivalent: K-8 Kit with Base Elements and Shafts: Bll-125, P17-031 (Panel)
(Not available as a factory assembled unit). Bll-139, R1-113 (Rear)
▲ "GTA-LOC" Equivalent: FA55L, RU955A, OS1000A.
▲ "GTA-LOC" Equivalent: FA753L, RU26L, OS1000, IS1500.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R6	5600Ω 5W	Pt. #251V020H34 (IRC #PW5-5600Ω)
R7	470K	
R8	390K	
R9	1.2meg	
R10	13meg	
R11	1meg	
R12	68K 2W	
R13	5600Ω	
R14	15K	
R15	270Ω	
R16	47Ω	
R17	33Ω	
R18	470K	
R19	100K	
R20	470K	
R21	2700Ω 2W	
R22	10K 3W	IRC #PW5-10000Ω
R23	47K 1W	
R24	150Ω	
R25	3900Ω	
R26	1meg	
R27	5600Ω	
R28	3900Ω 5W	IRC #PW5-3900Ω
R29	15000Ω 3W	
R30	2700Ω	
R31	47Ω	
R32	180K	
R33	470K	
R34	22K	
R35	15K	
R36	180K	
R37	100K 1W	
R38	22K	
R39	680K 1W	
R40	120K 1W	
R41	560K	
R42	33K 1W	
R43	820Ω	
R44	330Ω 1W	
R45	3.3meg	
R46	680K	
R47	1meg	
R48	220K	
R49	22K	
R50	2700Ω	
R51	100K	
R52	33K	
R53	180K	
R54	150K	
R55	1meg	
R56	150Ω	
R57	15K	
R58	180K	
R59	82K 1W	
R60	1meg	
R61	680K	
R62	100Ω	
R63	560Ω	
R64	560Ω	
R65	1Ω (Cold) 6Ω (Hot)	Pt. #890V011H08
R66	680K	
R67	47K	
R68	39K 1W	
R69	100K	
R70	10K	
R71	56K	
R72	180K	
R73	1000Ω	
R74	470K	
R75	150Ω	
R76	15K 3W	IRC #PW5-15K
R77	4700Ω 1W	
R78	5000Ω 7W	Pt. #215V020H03 (IRC #PW10-5000Ω)
R79	3.3Ω	
R80	18K 2W	
R81	1500Ω 3W	Pt. #259V009H01 (IRC #PW5-1500Ω)
R82A	7.5Ω 15W	Pt. #251V027H03
B	30Ω 10W	
R83	12Ω	
R84	5100Ω	
R85	5600Ω	

* UHF Models use 1800Ω 2W in this application.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	RF Choke (.18uh)	230V065H01		4582		
L2	41.25MC Trap	230V069H02				
L3	47.25MC Trap	230V076H02				
L4	1st Video IF	235V049H01				
L5	47.25MC Trap	230V076H01				
L6	2nd Video IF	235V048H01				
L7	39.75MC Trap	230V030H01				
L8	3rd Video IF	235V049H01				
L9	4th Video IF	235V048H02				
L10	RF Choke (14uh)	230V019H15		4624	RTC-8524	
L11	RF Choke (14uh)	230V019H05		4624	RTC-8524	
L12	RF Choke (4.7uh)	230V019H04	SW-631	4609	RTC-8519	
L13	Peaking (200uh)	230V034H05	TV-197	6154	RTC-8586	
L14	Peaking (200uh)	230V034H05	TV-197	6154	RTC-8586	
L15	4.5MC Trap	230V030H02				
L16	Peaking (140uh)	230V034H03	TV-196	6120	RTC-8575	
L17	Peaking (300uh)	230V034H04	TV-198	6174	RTC-8592	
L18	1st Sound IF	230V063H01				
L19	2nd Sound IF	235V049H01				
L20	Quadrature	230V031H01				
L21	RF Choke (14uh)	230V019H10		4624	RTC-8524	

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L22	Horiz. Stabilizer	230V032H01					HS-16	

FILTER CHOKE

ITEM No.	RATINGS: CURRENT (Measured)	DC. RES.	INDUCTANCE (0 CURRENT 1000 Cy.)	REPLACEMENT DATA: AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L23	.230A	20Ω	.5 Hy.	430V064H01				C-34X	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA: AIRLINE PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	Vert. Output	430V005H05	A-2815 ①		VO-109 ①	26875 ①	A-114X	
T2	Yoke Horiz. (21MH) (10°) Vert. (32MH) Rear Cover and Centering Device	490V007H01		PCM1834 ② ⑤		Y-53 ③ ⑤	Y-62 ④ VW1 ⑤	
		781V344H01						
T3	Horiz. Output	493V007H01	HVO-154* ③			FLY-95 * ③	D-154 * ④	

① Use 16 to 1 Turns Ratio.
② Connect Yoke Terminal #3 to Horiz. Output Terminal #6;
Yoke Terminal #2 & #7 to Horiz. Output Terminal #5;
Yoke Terminal #1 to Junction of C68 & C69.
③ Connect same as original.
④ Use original Rear Cover and Centering Device.
⑤ Use original Mounting Plate.

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
7	6			6	6
6	4			4	4
4	T			T	T
3	3			3	3

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	SEC.	REPLACEMENT DATA: AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T4	9700Ω	6-8Ω	430V088H01	A-2900①	A-3858①	23886 ①	S-52X	① Drill new mounting hole(s).

SPEAKER

ITEM No.	TYPE: SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA: AIRLINE PART No.	QUAM PART No.	NOTES
SP1	4"	PM	6-8Ω	570V075H01	4A05Z6.4	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No	REPLACEMENT DATA
K1	Vert. Integrator	2000mmf, 4700mmf, 5000mmf, 5000mmf, 8200Ω, 8200Ω, 22K	219V029H01	
K2	Horiz. AFC Comp.	33mmf, 47mmf, 150mmf, 390mmf, 680mmf, 10K, 12K, 680K, 1meg	219V028H04	
K3	Control Bracket Isolation	1000mmf (1400V), 330K	219V004H03	Sprague ACI-8

POWER RECTIFIERS

ITEM No.	RATING: CURRENT (Measured)	REPLACEMENT DATA: AIRLINE PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.260A	295V008H03 *	1N1763 *	40H *	SR500 *	* Silicon Type
M2	.280A	295V008H03 *	1N1763 *	40H *	SR500 *	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA: AIRLINE PART No. FUSE	AIRLINE PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M3	3AG	3/4A 250V S/B P/T	758V003H17		315.750 (3AG 3/4A 250V S/B P/T)		MDV 3/4	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: AIRLINE PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M4	1N87A or 1N295	296V004H01	6GC1	1N87A	1N87A	Dual Selenium (Common Cath. Type) Video Detector (Pigtail)
M5		296V006H01				

AIRLINE MODELS GTM-4223A, GTM-4323A

FOLDER 1

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M6	Tuner	GV4S-4205	VHF, Model GTM-4223A
	Tuner	Mark VI	VHF with UHF Provisions, MODEL GTM-4323A
	Tuner	GI-204-17	UHF, MODEL GTM-4323A
M7	Antenna	318V006H01	JFD REPLACEMENT #TA372
M8	Circuit Breaker	753V006H01	

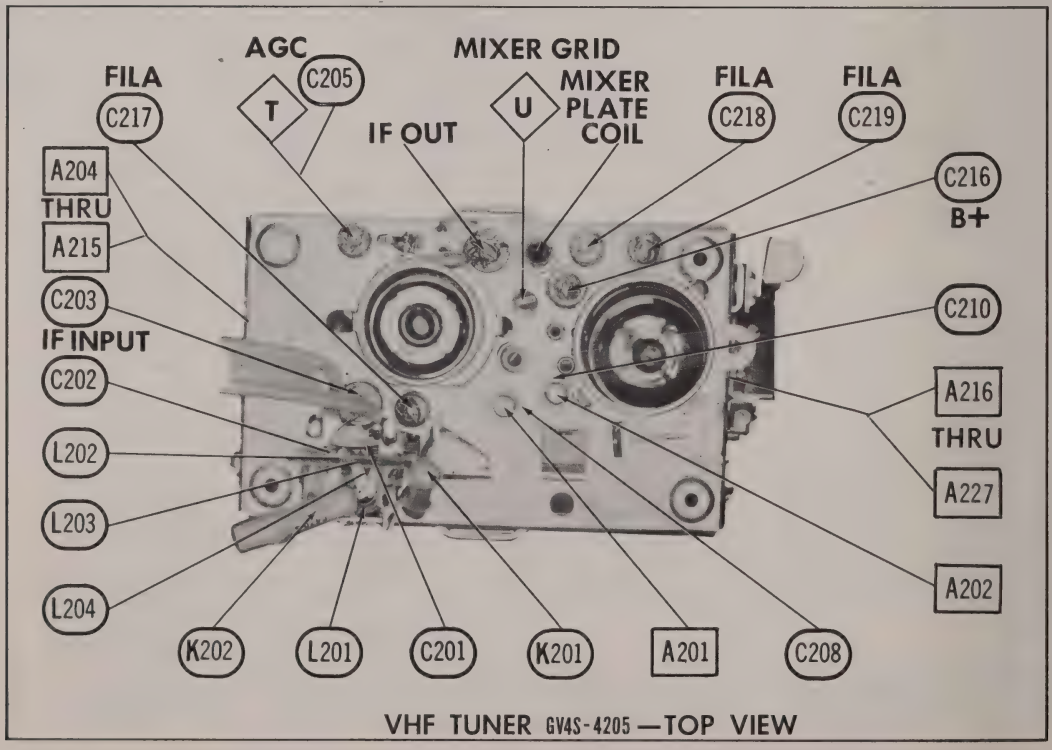
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Mask	610V016H01	
Dial	550V130H01	UHF, Model GTM-4323A
Knob	550V032H18	VHF Channel Selector
Knob	550V134H01	UHF Channel Selector
Knob	559V080H01	Outer, Fine Tuning
Knob	550V123H01	Inner, On-Off, Volume, Vertical Hold, Contrast
Knob	550V124H01	Outer, Horizontal Hold, Brightness
Knob	550V124H02	Outer, Contrast
Handle	558V278H01	Carrying

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-in	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor



VHF TUNER GV4S-4205 —TOP VIEW

VHF TUNER PARTS LIST AND DESCRIPTIONS

GV4S-4205

TUBES

• GENERAL ELECTRIC •			• RAYTHEON •		• SYLVANIA •
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	3ER5/GG	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	120 N750 10%			TCN-120	C10T12U	CCTN-121	CN7-312	10TCU-T12
C202	15 10%		DI-15	DD-150	L10Q15	CCD-150	GP415	10TS-Q15
C203	30 7%	Pt. #13M-008						
C204	15 7%		NPO-DI 15	TCZ-15	C10Q15C	CCTO-150	CNO-415	10TCC-Q15
C205	1000		EF-001 -	MFT-1000		CCF-102	CT280A	
C206	1.8-7	Pt. #31T3566						
C207	100 5%							
C208	.5-3.5			829-4		CV-2	CT551	
C209	33 10%		DI-33	DD-330	L10Q33	CCD-330	GP433	10TS-Q33
C210	.5-3.5			829-4		CV-2	CT551	
C211	.82 10%	Pt. #13D-111-38						
C212	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C213	1000		BPD-001	DD-102	BYA10DI	CCD-102	B-210	5HK-D10
C214	6.8 ±.25mmf		NPO-DI 6.8	DTZ-6R8	C10V68C	CCTO-6R8	CNO-568	10TCC-V68
C215	18 N220 10%	Pt. #13R-032				*		10TCR-Q18
C216	1000		EF-001	MFT-1000		CCF-102	CT280A	
C217	1000		EF-001	MFT-1000		CCF-102	CT280A	
C218	1000		EF-001	MFT-1000		CCF-102	CT280A	
C219	1000		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	47K	
R202	1000Ω	
R203	4700Ω	

ITEM No.	RATING	REMARKS
R204	1000Ω	
R205	10K	(4700)*
R206	220K	

ITEM No.	RATING	REMARKS
R207	4700Ω	

* Alternate Value.

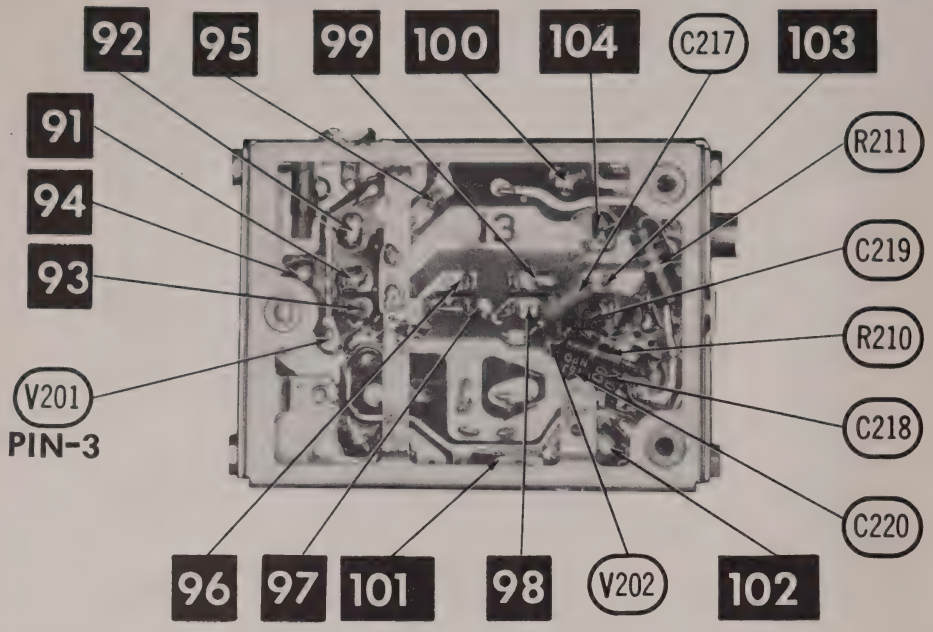
COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	AIRLINE PART No.	REPLACEMENT DATA
K201	Antenna Filter	470mmf, .3-1meg	13P-195	Centralab RC-471 Sprague AC1-1
K202	Antenna Filter	470mmf, .3-1meg	13P-195	Centralab RC-471 Sprague AC1-1

COILS (RF-IF)

ITEM No.	USE	AIRLINE PART No.	NOTES
L201	Ant. Trans.	31T-3665-01	
L202	Trap Coil	31T-2489	
L203	Trap Coil	34A-1044	
L204	RF Choke	34A-1010	
L205A	Ant., RF, Mixer, & Osc. Coils	31M-2GV4	Channel 2
B	"	31M-3GV4	Channel 3
C	"	31M-4GV4	Channel 4
D	"	31M-5GV4	Channel 5
E	"	31M-6GV4	Channel 6

ITEM No.	USE	AIRLINE PART No.	NOTES
L205F	Ant., RF, Mixer & Osc. Coils	31M-7GV4	Channel 7
G	"	31M-8GV4	Channel 8
H	"	31M-9GV4	Channel 9
I	"	31M-10GV4	Channel 10
J	"	31M-11GV4	Channel 11
K	"	31M-12GV4	Channel 12
L	"	31M-13GV4	Channel 13
L206	Mixer Plate Coil	31U-630-03	

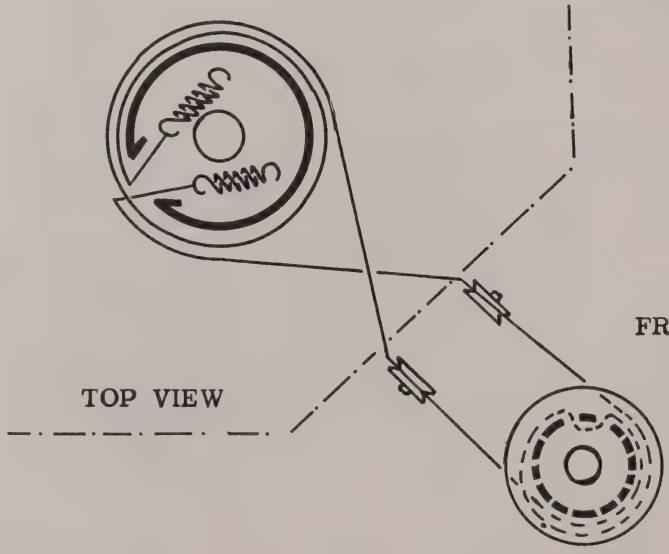


A Howard W. Sams CIRCUITRACE® Photo

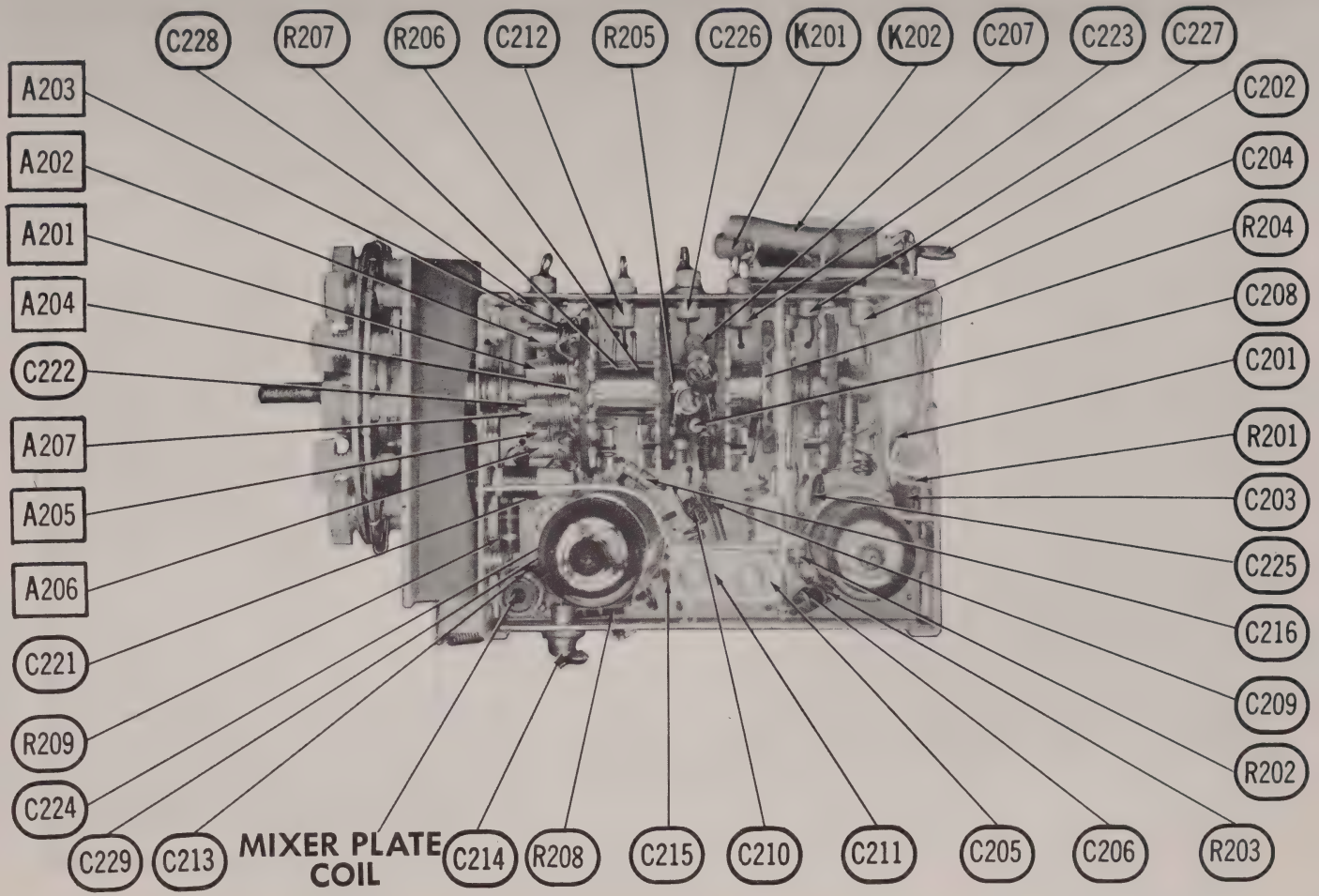
MARK VI

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER with UHF Provisions - BOTTOM VIEW



UHF DRIVE CORD STRINGING



VHF TUNER with UHF Provisions MARK VI - TOP VIEW

TUNER PARTS LIST AND DESCRIPTIONS

G1-204-17

TUBES

• GENERAL ELECTRIC •			• RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V301	UHF Osc.	3AF4A			

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C301	5		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C302	1.5 N150							
C303	5		NPO-SI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C304	.5 N750		NPO-SI .5	TCZ-R5				
C305								
C306								
C307	1000		EF-001	MFT-1000		CCF-102	CT280A	
C308	1000		EF-001	MFT-1000		CCF-102	CT280A	
C309	1000		EF-001	MFT-1000		CCF-102	CT280A	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

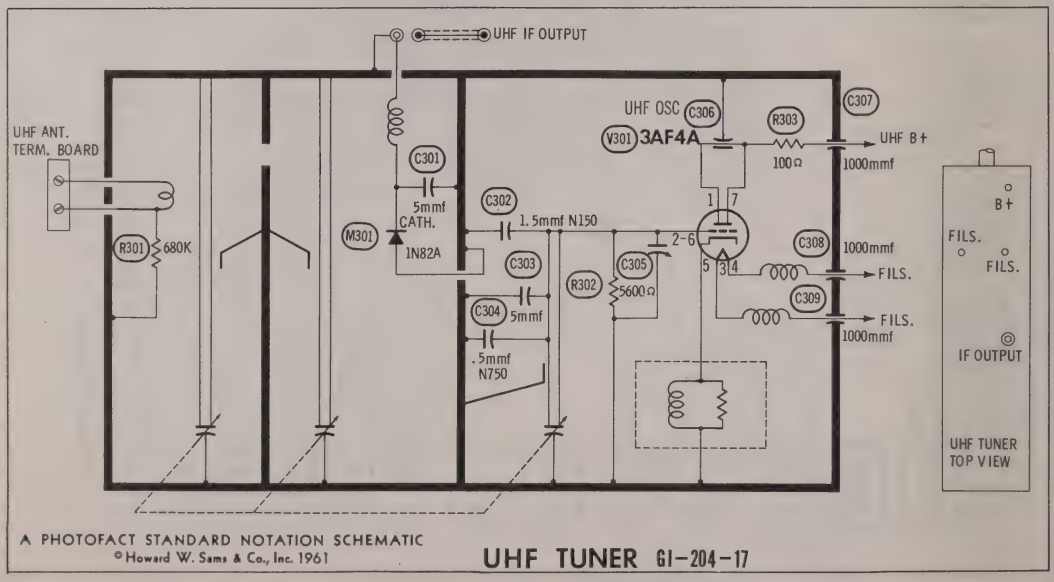
ITEM No.	RATING	REMARKS
R301	680K	

ITEM No.	RATING	REMARKS
R302	5600Ω	

ITEM No.	RATING	REMARKS
R303	100Ω	

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M301	1N82A			1N82A	1N82A	



A PHOTOFACT STANDARD NOTATION SCHEMATIC

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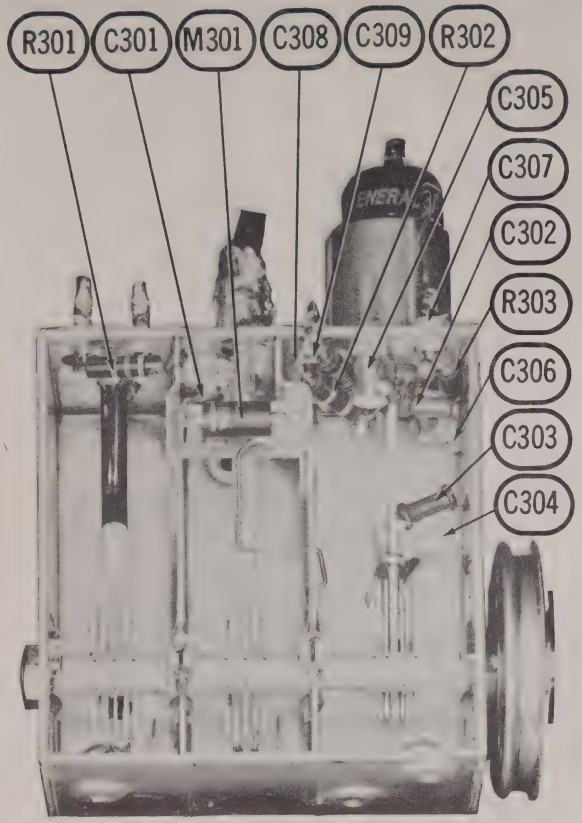
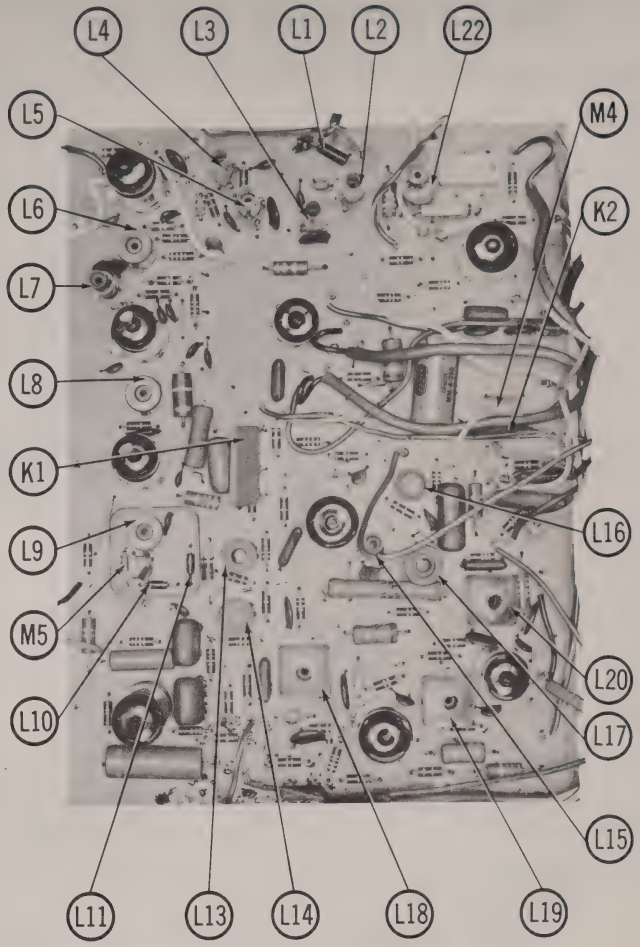
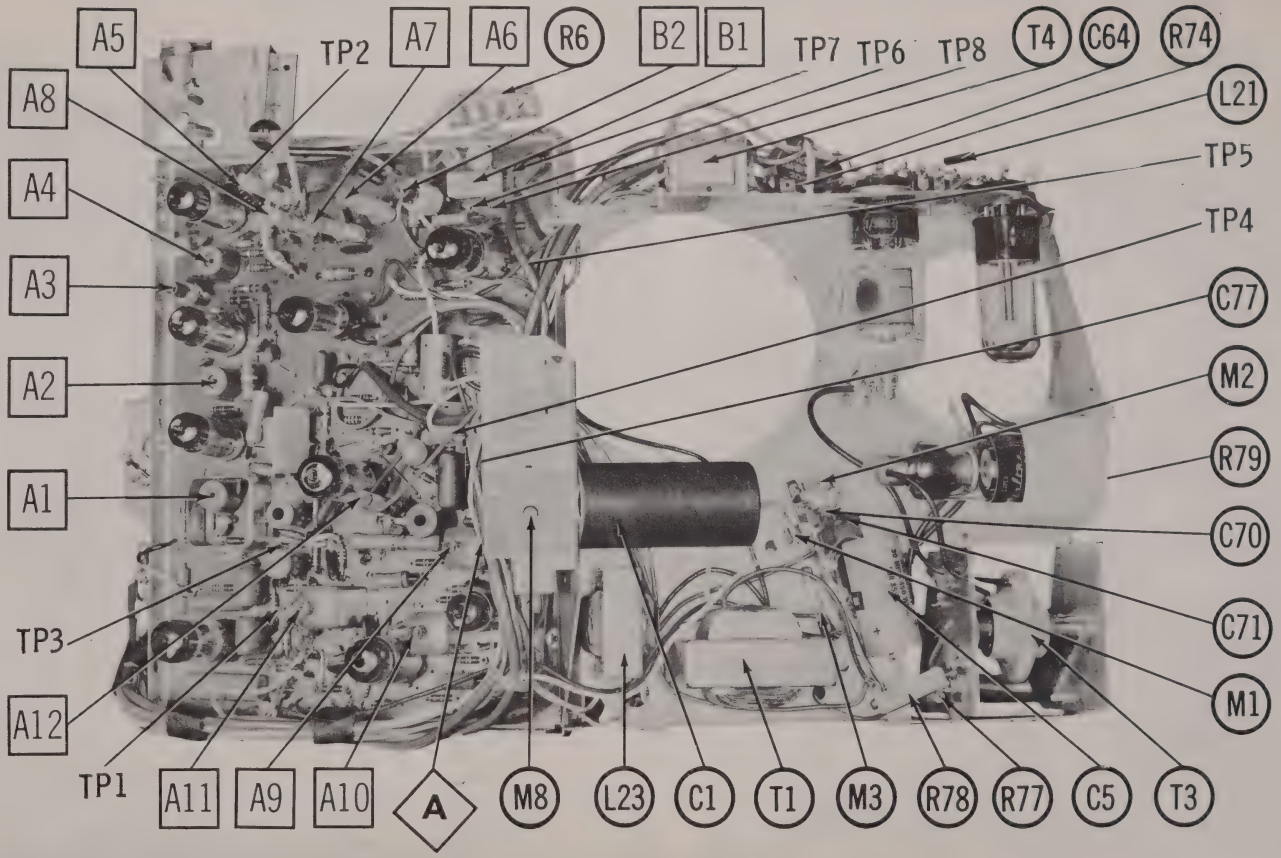
UHF TUNER G1-204-17



UHF TUNER GI-204-17



TV PRINTED BOARD - INDUCTOR & MISC. IDENT.



TP1 .4V IF AGC
TP2 .5V 1st IF GRID
TP3 -.7V VIDEO DET. OUTPUT
TP4 4V PIX CATH

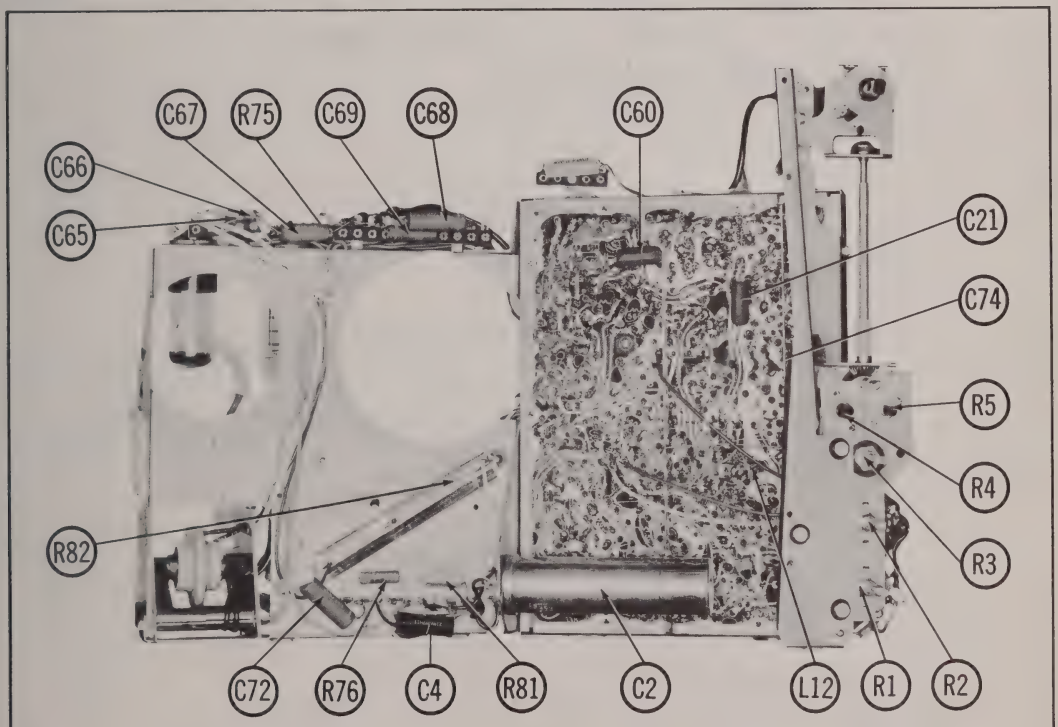
TV CHASSIS - TOP VIEW

TP5 -.8V HORIZ MULT CONTROL GRID
TP6 225V HORIZ MULT B +
TP7 -5V HORIZ HOLD CONTROL
TP8 225V HORIZ MULT STABILIZER COIL

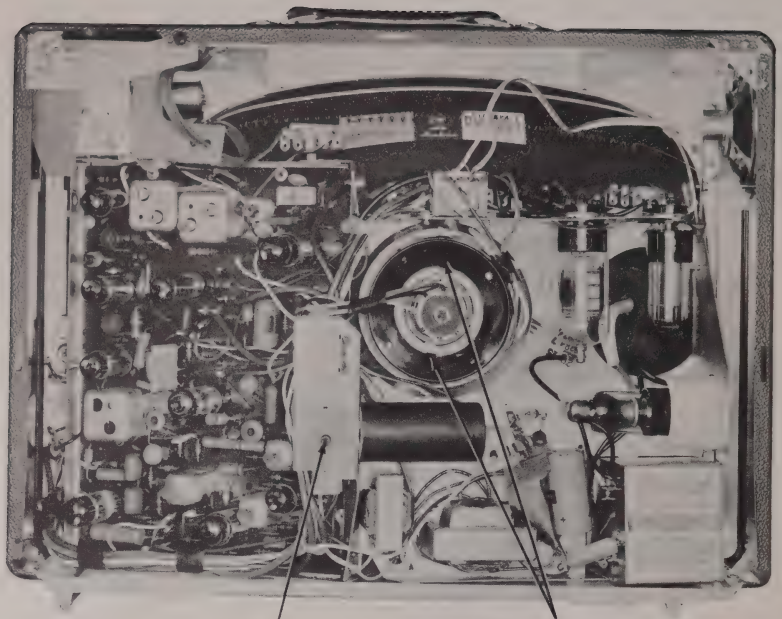
RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	4BZ6	300K	80Ω	16Ω	19Ω	▪280Ω	▪280Ω	0Ω		
V2	4BZ6	†350K	INF	19Ω	22Ω	†2700Ω	†2700Ω	▪12Ω		
V3	4BZ6	0Ω	150Ω	22Ω	25Ω	†10K	†47K	0Ω		
V4	8AW8A	0Ω	1.8meg	†120K	37Ω	43Ω	47Ω	1meg	†18K	†5500Ω
V5	6FV8	2meg	†25K	2700Ω	30Ω	34Ω	†40K	†40K	0Ω	100K
V6	4DT6	4.5Ω	820Ω	34Ω	37Ω	†685K	†33K	560K		
V7	6AQ5A	•0Ω	330Ω	48Ω	43Ω	†1900Ω	†1500Ω	NC		
V8	8CS7	†6600Ω	NC	•1.5meg	30Ω	25Ω	†600K	•1.5meg	0Ω	100Ω
V9	8CG7	†56K	•220K	1000Ω	4Ω	10Ω	†50K	2.3meg	1000Ω	0Ω
V10	17DQ6A	NC	48Ω	NC	†15K	470K	NC	65Ω	0Ω	TOP CAP †31Ω
V11	17D4	NC	NC	¶	NC	†20Ω	NC	65Ω	82Ω	
V12	1G3GT 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †675Ω
V13	17EBP4	0Ω	22K	†20K	0Ω	NC	NC	•150K	4Ω	
V201	3ER5 GG	0Ω	350K	16Ω	14Ω	†6600Ω	0Ω	0Ω		
V202	6CG8A	4700Ω	†15K	0Ω	10Ω	14Ω	†6600Ω	†5600Ω	0Ω	225K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
† MEASURED FROM PIN 3 OF V11.
▪ MEASURED FROM PIN 2 OF V2.
NC NO CONNECTION



TV CHASSIS BOTTOM VIEW



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Connect a short clip lead across the Horizontal Stabilizing Coil (L22).

Set the Horizontal Hold Control to the center of its range.

Connect the DC probe of a VTVM to TP-5. Common to chassis.

Tune in a TV station and adjust the Horizontal Multivibrator Trimmer (B1) for zero volts on the VTVM. If zero can be approached but not reached, set the Horizontal Hold Control slightly to one side of center for zero voltage.

Remove the jumper from L22 and adjust the Horizontal Frequency Slug (B2) for zero reading on the meter. Check lock-in action by switching from channel to channel. The picture should pull into synchronization on all channels.

DISASSEMBLY INSTRUCTIONS

CHASSIS AND PICTURE TUBE REMOVAL

1. Remove 2 screws holding rear cover. Remove rear cover.
2. Remove 8 push on type knobs. (Fine Tuning Knob not removable on early production models.)
3. Remove speaker leads and disconnect antenna leads.
4. Remove 2 bolts at top holding chassis and picture tube mounting bracket to cabinet.
5. Remove one screw holding rear control panel.
6. Remove 6 chassis bolts.
7. Remove chassis (with picture tube).

PHOTOFACT® Folder with CIRCUITRACE®

RCA VICTOR CHASSIS KCS130A, B, F, H, K, M, N, KRS24A, B, KRT1A, B

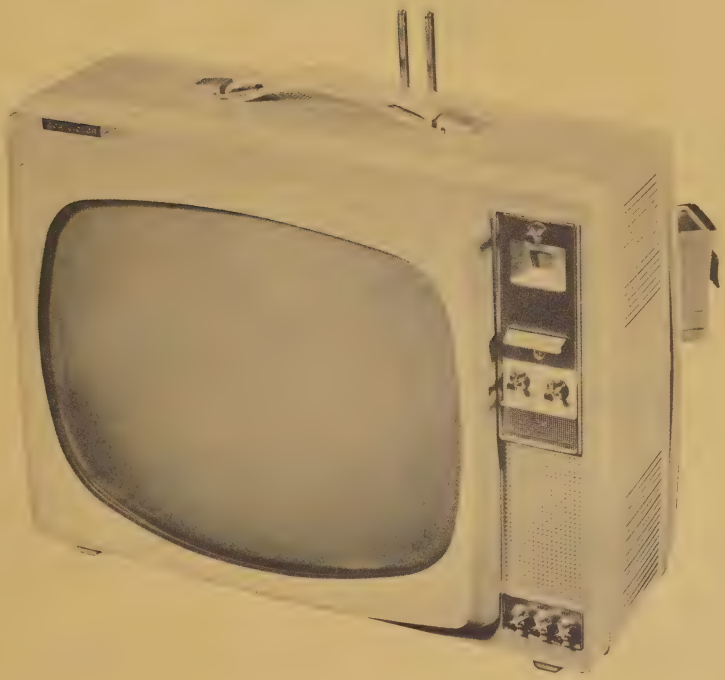
RCA VICTOR CHASSIS KCS130A,
B, F, H, K, M, N, KRS24A, B, KRT1A, B

IMPORTANT FILING NOTICE

The TV Folder for this envelope will be found among the first folders in this complete Set of folders.

Merely insert the corresponding folder on this model in this envelope to retain proper filing and indexing order.

RCA VICTOR CHASSIS KCS130A,
B, F, H, K, M, N, KRS24A, B, KRT1A, B



MODEL 171AR067 (TV CH. KCS130M)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

DATE 1–61 SET 513 FOLDER 2

SET 513 FOLDER 2

MODEL 171AR067 (TV CH. KCS130M)

TRADE NAME	RCA Victor	MODELS	CHASSIS
		171A032X	KCS130N
		171A034, U	KCS130A, B
		171A040, U; 171A042, U; 171A043, U; 171A044, U; 171A047, U; 171A061, U; 171A062, U; 171A067, U; 171A068, U	KCS130F, H
		171AR044 (with Remote Control Receiver KRS24A and Remote Control Transmitter KRT1A)	KCS130K
		171AR062, 171AR067 (with Remote Control Receiver KRS24B and Remote Control Transmitter KRT1B)	KCS130M
MANUFACTURER	Radio Corporation of America, RCA Victor Tel. Div., Camden 8, New Jersey		
TUBES	TV: VHF - Sixteen, UHF - Seventeen Remote Control Receiver: Four		
POWER SUPPLY	110-120 Volts AC, 60 Cycle		
RATING	TV (VHF) & Remote Receiver: 210 Watts, 2.2 Amp. @ 117 Volts AC (While Tuning) 180 Watts, 1.7 Amp. @ 117 Volts AC (Not Tuning)		
TUNING RANGE	Channels 2 thru 13 VHF, 14 thru 83 UHF, Video IF 45.75MC, Sound IF 41.25MC (Intercarrier)		

SERVICING IN THE FIELD

SAFETY GLASS REMOVAL

Remove 3 screws at bottom of mask. Remove rear cover. Remove 2 screws at top (inside cabinet) holding mask and unplug speaker cable. Remove all knobs at front. Pull the bottom of the mask out and lift up to remove.

FUSE

Two fuse wires are used for filament protection. (For location, see M3 and M4 in photo "Chassis Bottom View".)

FUSE DEVICE

A fusible resistor is used for vertical and horizontal sweep protection. (For location, see "Tube Placement Chart".)

TUNER OSCILLATOR ADJUSTMENTS

To touch up the VHF Oscillator, it is necessary to remove the chassis. (See "Disassembly Instructions, Page 24".)

AGC

The AGC may be varied by means of an AGC Control. (For location, see "Tube Placement Chart".)

FOCUS

In models using 17DKP4, Focus Anode (Pin 4) may be connected to various voltage sources for best focus. In models using 17DSP4, Pin 4 may be connected to ground or 150 volt source. (See "TV Schematic".)

HORIZONTAL OSCILLATOR FIELD ADJUSTMENT

Coarse adjustment of the Horizontal Hold is accomplished by the proper setting of the Horizontal Stabilizing Coil Slug (B1). (For location, see "Tube Placement Chart".)

WIDTH

The width may be varied by a Width Coil. (For location, see "Tube Placement Chart".)

HORIZONTAL DRIVE

The horizontal drive may be varied by a Horizontal Drive Trimmer. (For location, see "Tube Placement Chart".)

CENTERING

Centering is accomplished by 2 magnetic rings, located behind the yoke, on the neck of the picture tube.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KA401

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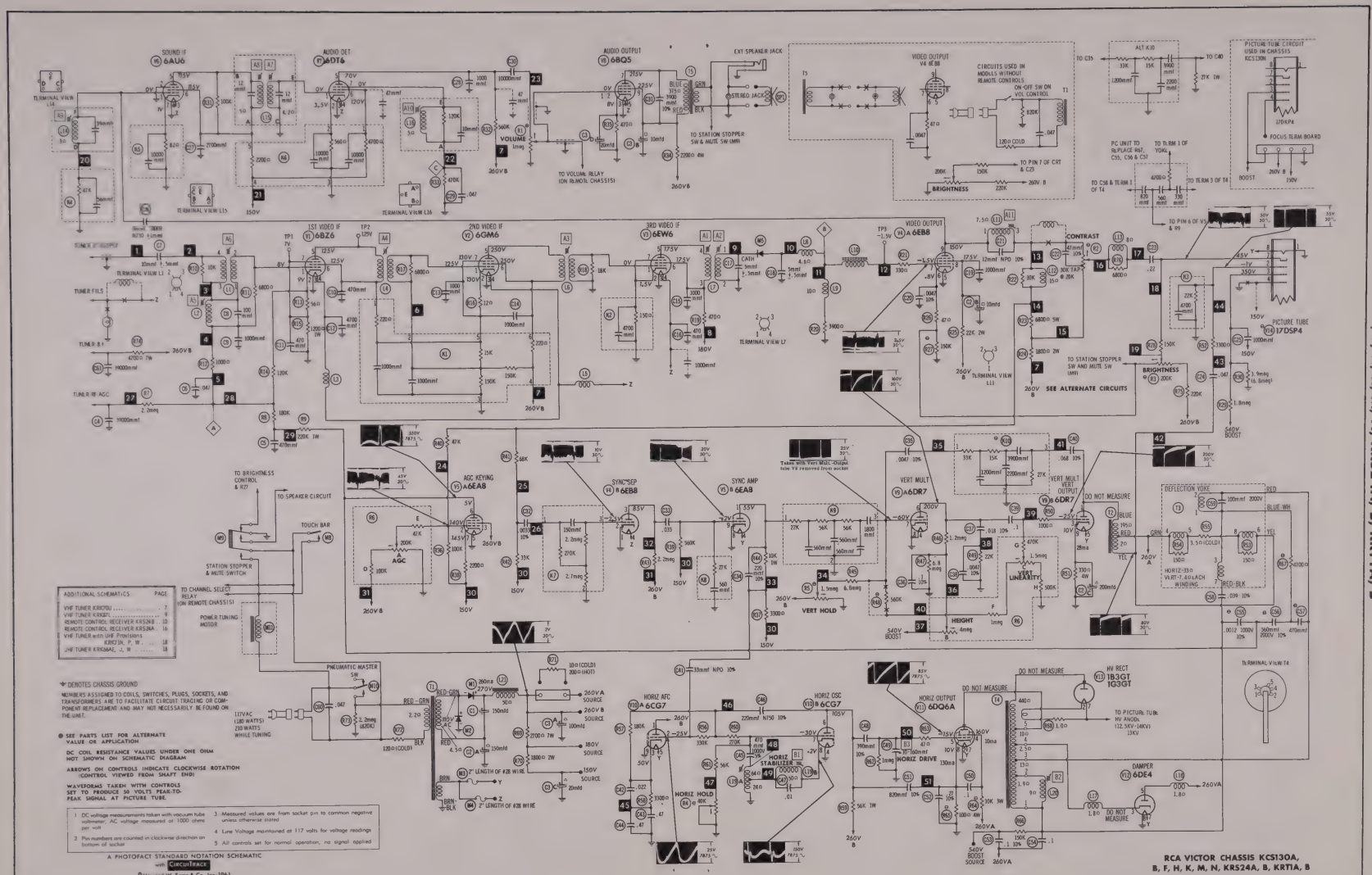
RCA VICTOR CHASSIS KCS130A, B, F, H, K, M, N, KRS24A, B, KRT1A, B
FOLDER 2
PAGE 2
PAGE 23
RCA VICTOR CHASSIS KCS130A, B, F, H, K, M, N, KRS24A, B, KRT1A, B
ADDITIONAL SCHEMATICS PAGE
VHF TUNER KRK70U 7
VHF TUNER KRK8FL 9
REMOTE CONTROL RECEIVER KRS24B 10
REMOTE CONTROL RECEIVER KRS24A 16
VHF TUNER with UHF Provisions KRK7JN, P, W 18
UHF TUNER KRK66AE, J, W 18
DENOTES CHASSIS GROUND
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)
WAVEFORMS TAKEN WITH CONTROLS SET TO PRODUCE 50 VOLTS PEAK-TO-PEAK SIGNAL AT PICTURE TUBE.
1 DC voltage measurements taken with vacuum tube voltmeter. AC voltage measured at 1000 ohms per volt
2 Pin numbers are counted in clockwise direction on bottom of socket
3 Measured values are from socket pin to common negative unless otherwise stated
4 Line Voltage maintained at 117 volts for voltage readings
5 All controls set for normal operation, no signal applied
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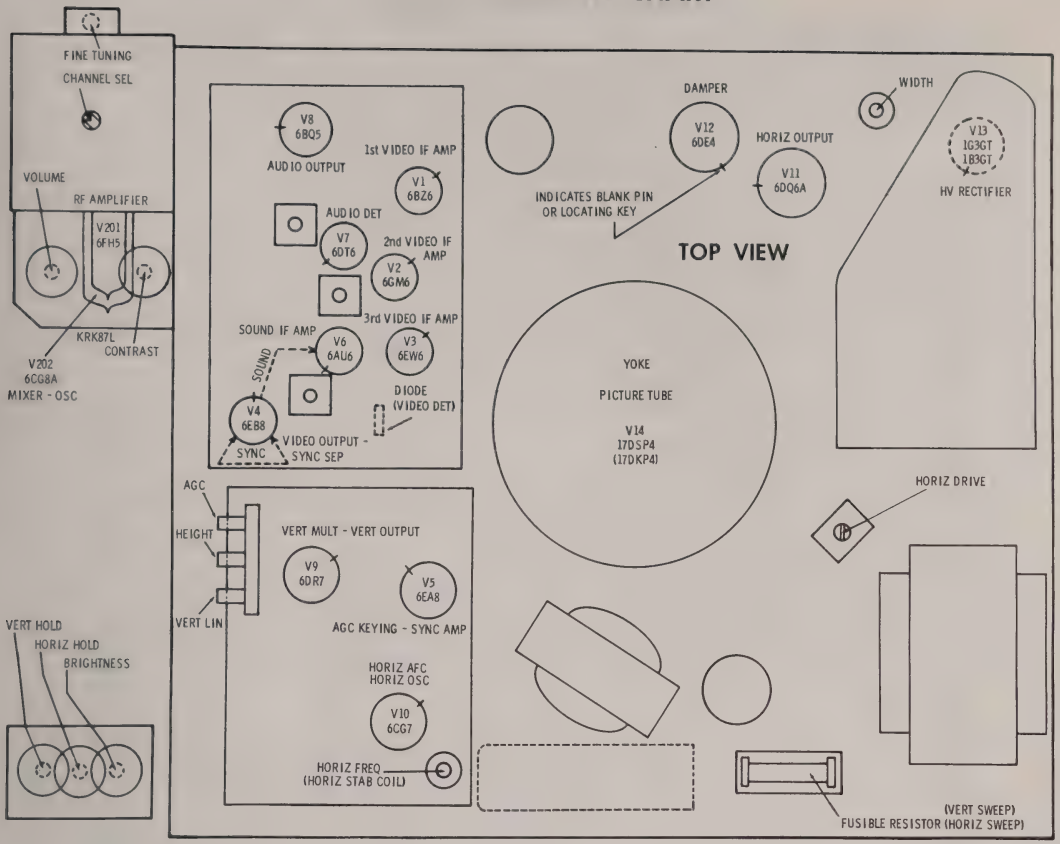
TUBE PLACEMENT CHART



TUBE FAILURE CHECK CHART

The following chart lists tubes whose failures are most likely to produce indicated symptoms. Refer to tube placement chart for location and type of tube.

POWER SUPPLY FAILURE
No raster, no sound Rectifiers (B+)

SWEEP FAILURE
No raster, has sound V10, V11, V12, V13, V14
No vertical deflection V9
Poor vert. linearity or foldover V9
Poor horiz. linearity or foldover V10, V11, V12
Narrow picture V10, V11, V12, Rectifiers (B+)
Vert. off freq. V9
Horiz. off freq. V10

LOSS OF PICTURE OR SOUND
No pic, no sound, has raster V1, V2, V3, Diode (Video Det.), V4
No pic, no sound, has snow V201, V202, V1
No pic, has sound, has raster V4, V14
Has pic, no sound V6, V7, V8
Overloaded picture V5

SYNC FAILURE
No vert. sync V4, V5
No horiz. sync V4, V5
No vert. or horiz. sync V4, V5

ALIGNMENT INSTRUCTIONS

PRE-ALIGNMENT INSTRUCTIONS

The High Voltage Lead should be securely taped and kept away from the chassis.
Disable the Horizontal Output Circuit by connecting a 150Ω 10W Resistor in series with the plate lead of the Horizontal Output Tube. Connect the negative lead of a 12.5 volt bias supply from pin 5 (grid) of the Horizontal Output Tube. Connect positive lead to chassis.
Suggested Alignment Tools: A1 thru A5, A7, A8, A9, A11 .... GENERAL CEMENT #8606, 8606L, 8282, 9295
WALSCO #2526, 2543, 2544, 2545
A6 ..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A10 ..... GENERAL CEMENT #8721, 8722
WALSCO #2519

VIDEO IF ALIGNMENT

Connect clip lead from point (A) to chassis.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	1500mmf Ceramic Capacitor	High side to Mixer grid wafer contact thru access hole (adjacent to Mixer Grid Wafer) located in left side of tuner shield. Low side to chassis.	44.5MC (Unmod)	Any non-interfering channel	DC probe to point (B). Common to chassis. (Across Video Det. Load).	A1, A2	Adjust for maximum deflection. Adjust generator output for 3 volts on meter when finally peaked.
2.	"	"	45.5MC	"	"	A3	"
3.	"	"	43.0MC	"	"	A4	"
4.	"	"	47.25MC	"	"	A5	Adjust for MINIMUM deflection.

OVERALL VIDEO IF RESPONSE CHECK

Connect the negative lead of a 4 volt bias supply to point (A). Positive to chassis.
Connect a 180Ω Resistor from pin 5 (plate) to pin 6 (screen) of the 1st Video IF Amp.
Couple signal generator loosely to sweep output cable to provide markers.

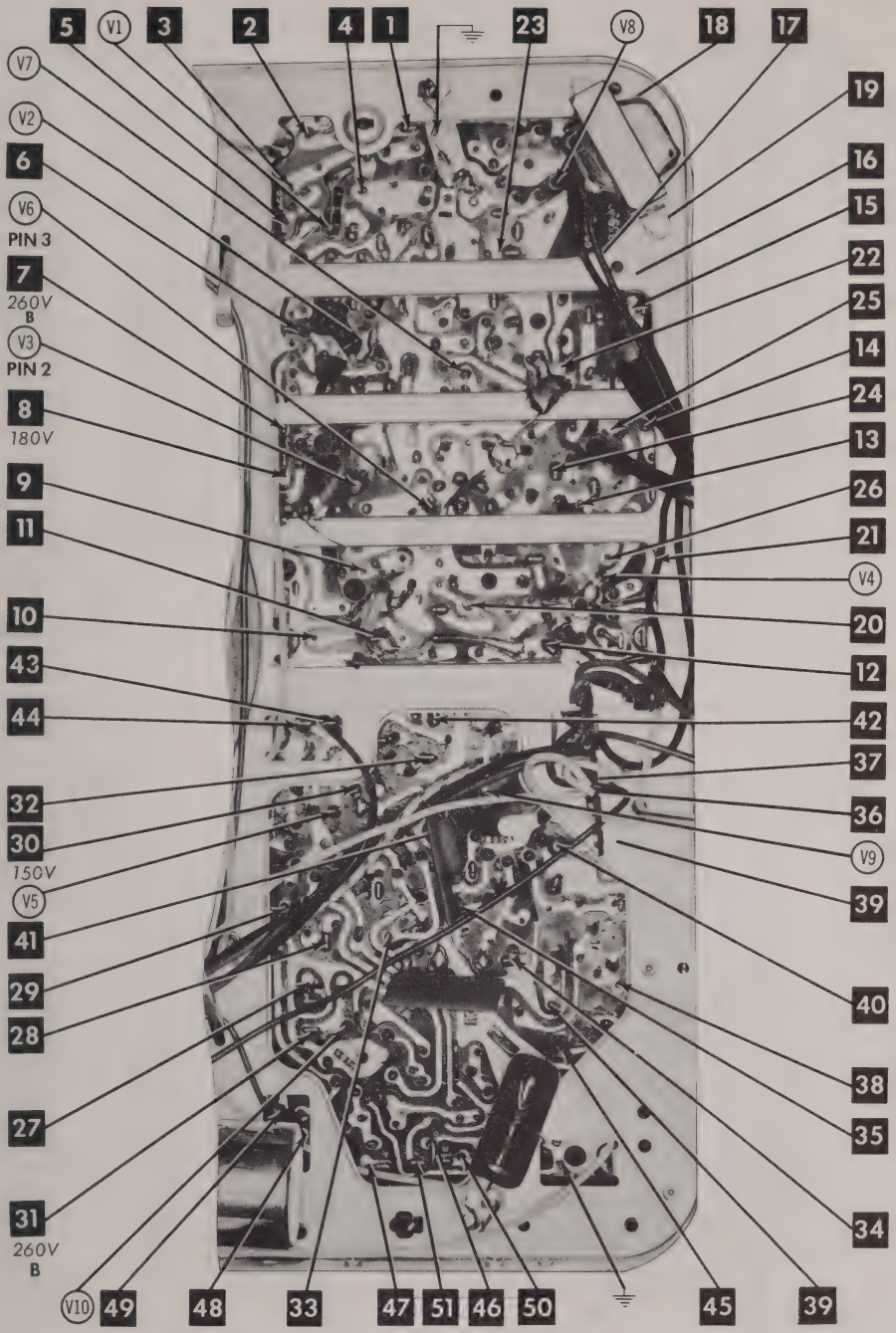
	DUMMY ANTENNA	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
5.	1500mmf Ceramic Capacitor	High side to Mixer grid wafer contact thru access hole (adjacent to Mixer Grid Wafer) located in left side of tuner shield. Low side to chassis.	45.0MC (10MC Swp.)	42.5MC 45.75MC	4	Vert. Amp. thru demodulator probe to pin 5 (plate) of 1st Video IF Amp. Low side to chassis. Calibrate scope to 0.5 volts peak to peak.	A6 & Mixer Plate Coil	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	42.5MC 45.0MC 45.75MC	"	Vert. Amp. thru 10K to point (B). Low side to chassis. (Across Video Det. Load). Calibrate acope for 5 volts peak to peak.	A1, A2, A3	Check for response similar to Fig. 2. If necessary, retouch A1, A3 and A4 for desired response.
7.	Fig. 3	High side thru pad (Fig. 3) to Mixer Grid Wafer contact thru access hole (adjacent to Mixer Grid Wafer) located in left side of tuner shield. Low side to chassis.	Not used	45.75MC	"	USE VTVM DC probe to point (B). Common to chassis.		Adjust generator output to provide exactly 1.5 volts on VTVM.
8.	1500mmf Ceramic Capacitor	Remove pad. High side to Mixer Grid Wafer contact thru access hole (adjacent to Mixer Grid Wafer) located in left side of tuner shield. Low side to chassis.	45.0MC (10MC Swp)	41.25MC	"	Leave VTVM connected. Connect scope as in step 6.	A1, A3	Retouch A1 and A4 for 1.0 to 1.5 volts on VTVM while maintaining response similar to Fig. 2.
9.	Fig. 4	Across antenna terminals thru matching network (Fig. 4).	Each VHF Channel in turn	42.5MC 45.75MC 47.25MC	All VHF Channels	Vert. Amp. thru 10K to point B. Low side to chassis.	A1, A2	Check for response similar to Fig. 2. Retouch A1 and A3 SLIGHTLY to correct for tilt or other conditions that are approximately the same on all channels.

SOUND IF ALIGNMENT

Connect the negative lead of a 10 volt bias supply to point (A). Positive to chassis.
Set Contrast fully clockwise.
Set VTVM for negative voltage readings.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
10.	.001mfd	High side to point (B). Low side to chassis.	4.5MC (Unmod)	Any non-interfering channel	DC probe thru diode probe (Fig. 5) to pin 7 (grid 3) of Audio Detector. Common to chassis.	A7, A8, A9	Adjust for maximum negative voltage on meter. Attenuate generator for a reading between 1.0 and 1.5 volts on meter when finally peaked. Peak A7 and A8 with maximum core separation. Adjust A9 for maximum deflection.
11.	Remove VTVM and diode probe. Connect scope across Volume Control. Turn off signal generator and tune in the strongest TV station in the area and adjust Volume Control for normal volume. Preset coil slug (A10) flush with the top of coil form. While observing scope and listening to the sound, adjust A10 clockwise to a peak. Continue turning clockwise to a second louder peak and adjust for maximum on this second peak.						

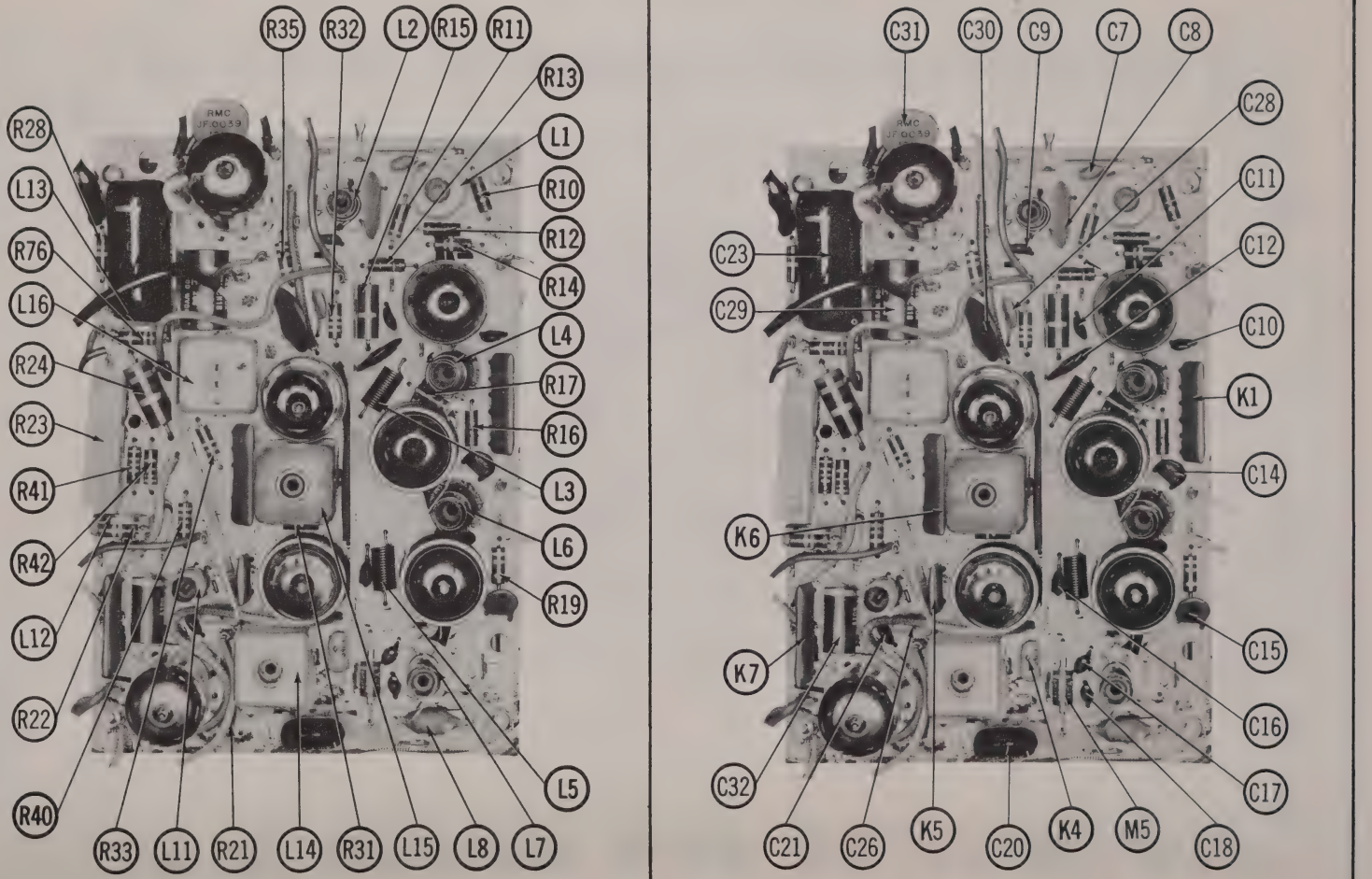
CONTINUED PAGE 21



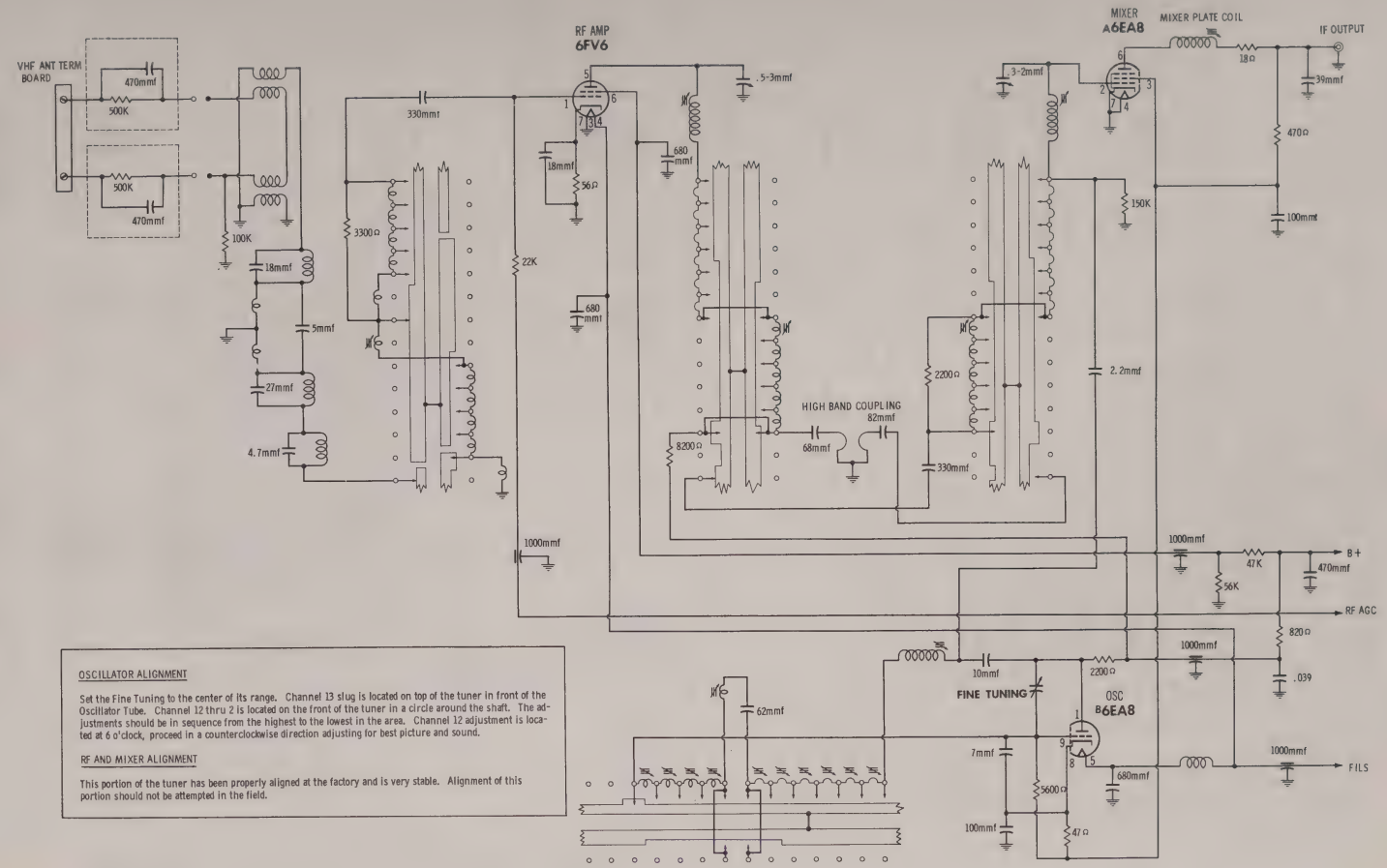
A Howard W. Sams CIRCUITRACE* Photo

ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VIDEO, SOUND PRINTED BOARD & SWEEP, SYNC, AGC PRINTED BOARD



VIDEO, SOUND PRINTED BOARD



OSCILLATOR ALIGNMENT

Set the Fine Tuning to the center of its range. Channel 13 slug is located on top of the tuner in front of the Oscillator Tube. Channel 12 thru 2 is located on the front of the tuner in a circle around the shaft. The adjustments should be in sequence from the highest to the lowest in the area. Channel 12 adjustment is located at 6 o'clock, proceed in a counterclockwise direction adjusting for best picture and sound.

RF AND MIXER ALIGNMENT

This portion of the tuner has been properly aligned at the factory and is very stable. Alignment of this portion should not be attempted in the field.

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VHF TUNER KRK70U

RCA VICTOR CHASSIS KCS130A, B, F, H, K, M, N, KRS24A, B, KRT1A, B

TUNER PARTS LIST AND DESCRIPTIONS KRK87L

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V201	RF Amp.	6FH5	V202	Mixer - Osc.	6CG8A

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C201	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C202	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C203	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C204	27 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C205	30 7.5%	Pt. #107876						
C206	28 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C207	1000		EF-001	MFT-1000		CCF-102	CT280A	
C208	1.8-7	Pt. #107886		829-7				
C209	100 5%	Pt. #107879						
C210	.5-3.5			829-4		CV-2	CT551	
C211	28 N750 10%		N750-DI 25	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C212	33 N750		N750-DI 33	DTN-33	C10Q33U	CCTN-330	CN7-433	10TCU-Q33
C213	.5-3.5			829-4		CV-2	CT551	
C214	40	Pt. #107881						
C215	39 N750 5%			TCN-39	C10Q39U	CCTN-390	CN7-439	10TCU-Q39
C216	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C217	6.8 N150 ±.25mmf	Pt. #107882				*		10TCP-V68
C218	18 N220 10%	Pt. #107884				*		10TCR-Q18
C219	1000		EF-001	MFT-1000		CCF-102	CT280A	
C220	1000		EF-001	MFT-1000		CCF-102	CT280A	

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R201	47K	
R202	1000Ω	
R203	47Ω	

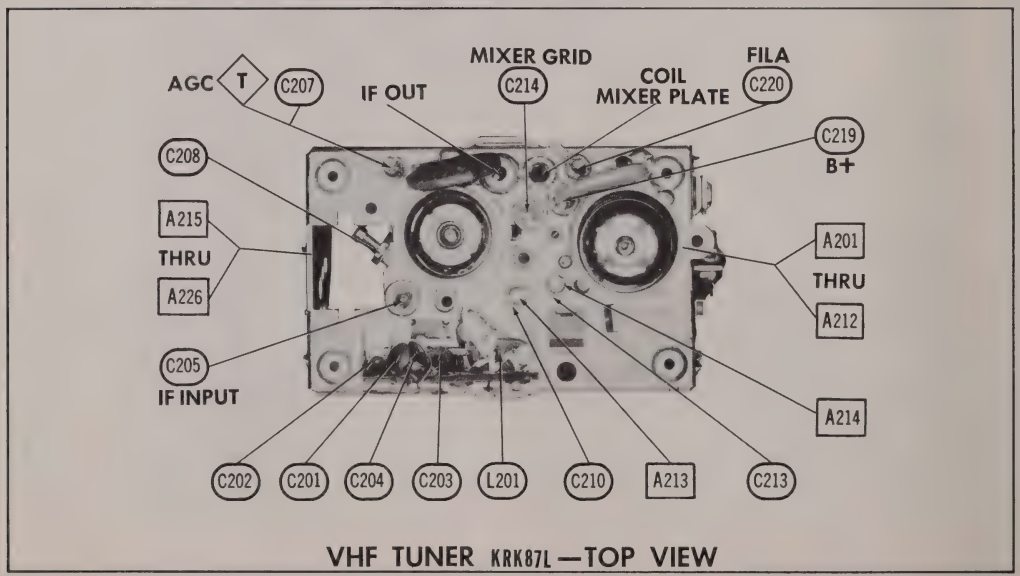
ITEM No.	RATING	REMARKS
R204	2700Ω	
R205	1000Ω	
R206	4700Ω	

ITEM No.	RATING	REMARKS
R207	220K	
R208	4700Ω	

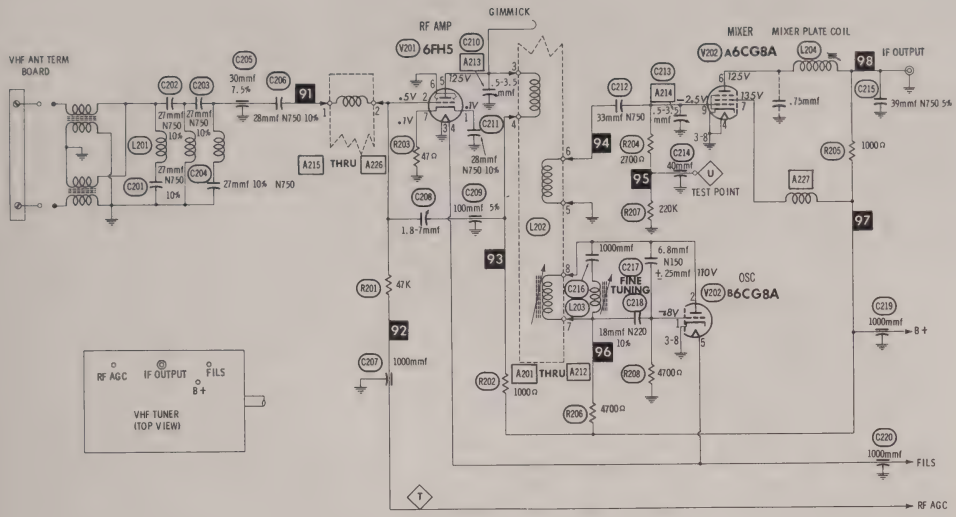
COILS (RF-IF)

ITEM No.	USE	RCA Victor PART No.	NOTES
L201A	Ant. Coil	107896	
B	Trap Coil		
C	Trap Coil		
D	Trap Coil		
L202A	Ant., RF, Mixer, & Osc. Coils	107898	Channel 2
B	"	107899	Channel 3
C	"	107900	Channel 4
D	"	107901	Channel 5
E	"	107902	Channel 6

ITEM No.	USE	RCA Victor PART No.	NOTES
L202F	Ant., RF, Mixer, & Osc. Coils	107903	Channel 7
G	"	107904	Channel 8
H	"	107905	Channel 9
I	"	107906	Channel 10
J	"	107907	Channel 11
K	"	107908	Channel 12
L	"	107909	Channel 13
L203	Fine Tuning	107888	Less Core
L204	Mixer Plate Coil	107889	



VHF TUNER KRK87L—TOP VIEW



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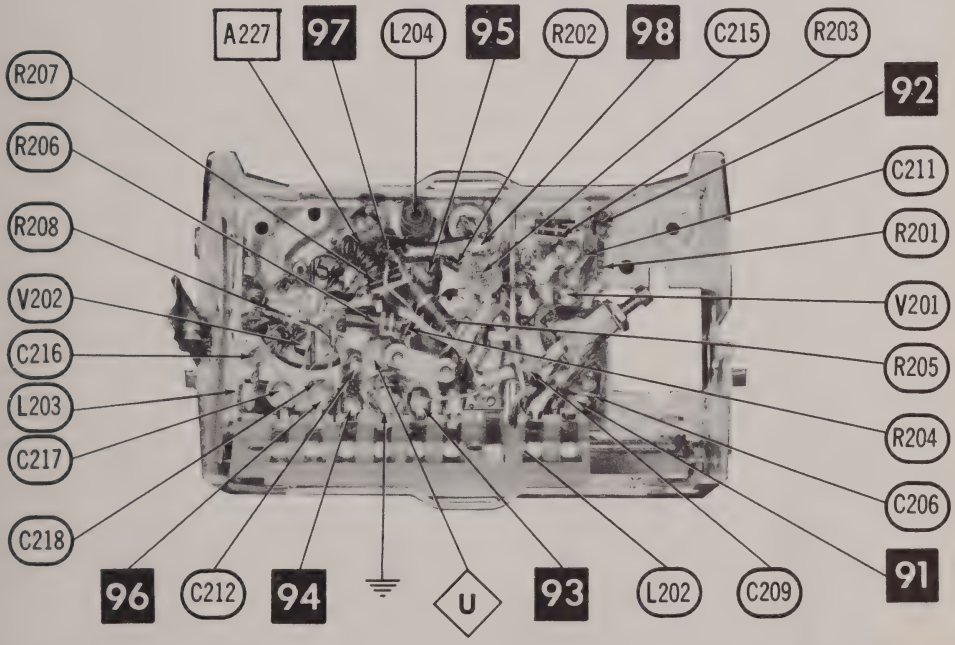
VHF TUNER KRK87L



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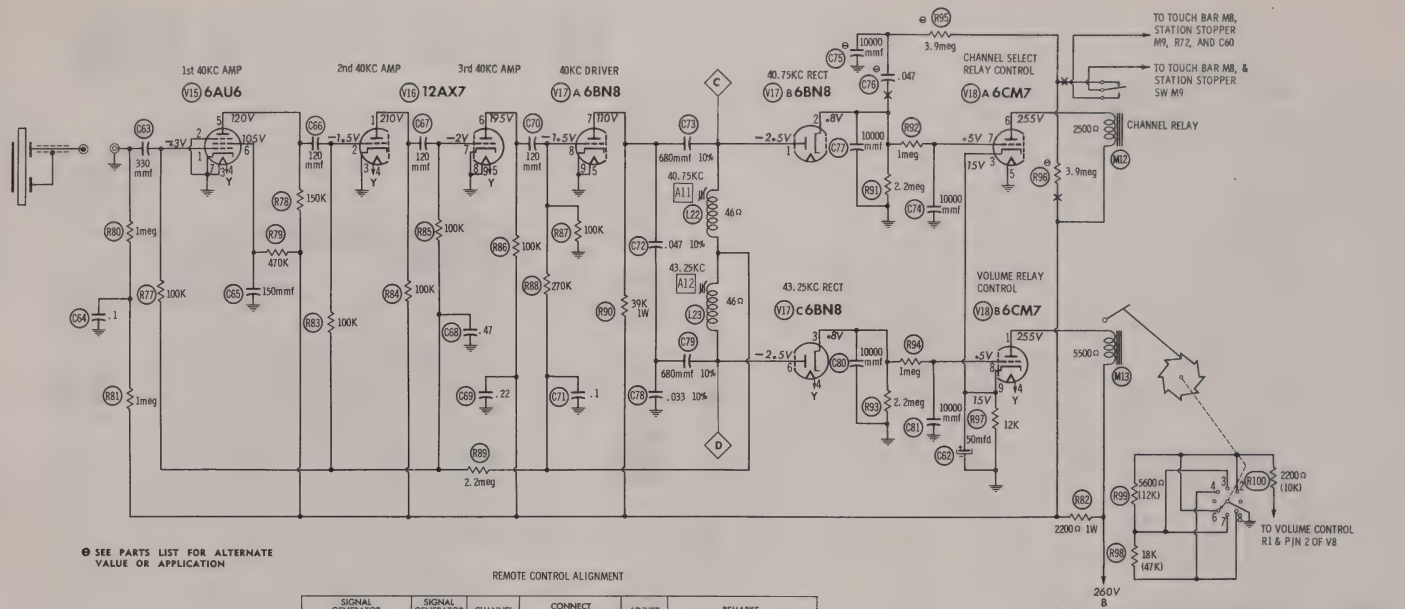
ARROWS INDICATING TUBE LOCATIONS ARE POINTING TO PIN 1 UNLESS OTHERWISE INDICATED

VHF TUNER KRK87L-BOTTOM VIEW



Θ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

REMOTE CONTROL ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .001mfd to pin 1(grid) of 1st 40KC Amp. Low side to chassis.	20.375KC		Diode probe to point ◇. Common to chassis.	A11	Adjust for maximum deflection.
2.	"	21.625KC		Diode probe to point ◇. Common to chassis.	A12	Adjust for maximum deflection.

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REMOTE CONTROL RECEIVER KRS24B

TV PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	1st Video IF Amp.	6BZ6	V8	Audio Output	6BQ5
V2	2nd Video IF Amp.	6GM6	V9	Vert. Mult. - Vert. Output	6DR7
V3	3rd Video IF Amp.	6EW6	V10	Horiz. AFC - Horiz. Osc.	6CG7
V4	Video Output - Sync Sep.	6EB8	V11	Horiz. Output	6DQ6A
V5	AGC Keying - Sync Amp.	6EA8	V12	Damper	6DE4
V6	Sound IF Amp.	6AU6	V13	HV Rectifier	1G3GT/1B3GT
V7	Audio Detector	6DT6			

PICTURE TUBE

ITEM No.	REPLACEMENT DATA					NOTES
	RCA Victor PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
V14	17DSP4 17DKP4 *	17DKP4 ①	17DSP4 ① 17DKP4 ①	17DKP4 ①	17DSP4 ② 17DKP4 ②	① Aluminized ② Silver Screen "85"

* Model 17TA032X (Chassis KCS130N).

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	150	200	107472	AFH1-25-70		WP125.9	TD-200-150		
C2A	▲150	200	107471	AFH3-167-20		FP333.05		TVL-2643	
B	■10	350				TC59		TVA-1208	
C	▲200	25							
C3A	▲100	400	107173 Note 1	AFH4-103-40	D0805	FP421.3	TMQ-4373	TVLS-4666.2*	
B	■10	400							
C	▲20	350							
D	20	50							

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Some versions may use 100mfd ② 350V, 10mfd ② 350V, 20mfd ② 350V, 20mfd ② 25V.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REMARKS	REPLACEMENT DATA						
					AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.	
C4	39000					DD-403	BYB6S4	4DP-3-403	GP140	5HK-S40	
C5	470				BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C6	.047	200V			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47	
C7	10		±.5mmf		NPO-DI 10	DTZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10	
C8	100				BPD-0001	DD-101	L10T1	CCD-101	GP310	10TS-T10	
C9	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C10	470				BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C11	470				BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C12	4700				BPD-0047	DD-472	BYA10D47M	CCD-472	B-247	5HK-D47	
C13	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C14	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C15	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C16	470				BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C17	5		±.5mmf		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50	
C18	5		±.5mmf		NPO-DI 5.0	DTZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50	
C19	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C20	.0047	400V	10%		V84C4D47-10%		PM6D47	6DP-1-472	GEM-6247	6TM-D47	
C21	12	NPO	10%			TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12	
C22	47		10%		DI-47	DD-470	L10Q47	CCD-470	GP447	10TS-Q47	
C23	.22	600V			P688N-22		CUB6P22	6DP-5-224	GEM-6022	6TM-P22	
C24	.047	400V			P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47	
C25	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C26	3 1000V		N750 ±1mmf						CN7-533	10TCC-V33	
C27	2700				DI-2700	DD-272	BYA10D27	CCD-272	B-272	10TS-D27	
C28	1000				BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10	
C29	.047	200V			P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47	
C30	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10	
C31	3900		10%		DI-4000		DPMS6D39	CCD-392	JL-239	10TS-D39	
C32	.0033	600V	10%		V84C6D33-10%		PM6D33	6DP-1-332	GEM-16233	6TM-D33	
C33	.033	400V			P488N-033	DD-303	CUB6S33	4DP-2-333	GEM-4133	6TM-S33	
C34	220		10%		1469-00022	TCZ-220	22R5T22	CM-19B-221K	CNO-322	MS-322	
C35	.0047	600V	10%		V84C6D47-10%		PM6D47	6DP-1-472	GEM-16247	6TM-D47	
C36	.1	600V	10%		V84C6P1-10%		PM6P1	6DP-4-104	GEM-1001	6TM-P10	
C37	.018	600V	10%		P684CM-018		PM6S2	6DP-2-203	GEM-1612	6TM-S20	
C38	.0047	600V	10%		V84C6D47-10%		PM6D47	6DP-1-472	GEM-16247	6TM-D47	
C39	.1	600V			P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10	
C40	.068	400V	10%		V84C4S68-10%		PM4S68	4DP-3-683		4TM-S68	
C41	33	NPO	10%		NPO-DI 33	DTZ-33	C10Q33C	CCTO-330	CNO-433	10TCC-Q33	
C42	.022	200V			P288N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	2TM-S22	
C43	.47	200V			P288N-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47	
C44	.47	200V			P288N-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47	
C45	470	1000V	5%	Pt. #105672				VCM-20-471J			
C46	220	N750	10%		N750-DI 220	DTN-220	C10T22U	CCTN-221	CN7-322	10TCU-T22	
C47	.01	400V			P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10	
C48	390		10%		DI-390	DD-391	L10T39	CCD-391	GP339	10TS-T39	
C49	10-160			Pt. #102412				463			
C50	.1	600V			P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10	
C51	820		10%		1469-00082		5R5T82	CM-19B-821K	MCB241	MS-382	
C52	.27	200V	10%		V84C2P25-10%		PM2P25	4DP-5-274		2WF-P27	
C53	.1	600V	10%		V84C6P1-10%		PM6P1	6DP-4-104	GEM-1001	6TM-P10	
C54	.1	600V			P688N-1	DF-104	CUB6P1	6DP-4-104	GEM-601	6TM-P10	
C55	.0012	1000V	10%	Note 1	P1084CM-0012		DPMS16D1	16DP-2-102	GEM-1621		
C56	560	2000V	10%	Note 1							
C57	470			Note 1	BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47	
C58	.039	400V	10%		P684CM-039		DPMS6S39	6DP-3-393	GEM-1614	6PS-S40	
C59	100	2000V			HVD-30-100	DD30-101	HVB20T1	3CCD-101	2HV-310	20GA-T1	
C60	.047	600V			P688N-047	DD-503	CUB6S47	6DP-3-473	GEM-6147	6TM-S47	
C61	39000					DD-403	BYB6S4	6DP-3-403	GP140	5HK-S40	

Note 1. May be part of Component Combination in some versions (Pt. #107544).

TV PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA RCA Victor PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	109179	AB-70	A47-1meg-2	B13-137	U53	Volume Note 1
B	Shaft			AK-8	RS-3/16	SK9	DS-37	
R2	30K 20K Tap	½	109174					Contrast Note 2
R3A	200K	½	109176	AB-46	A47-200K-S	B11-129	U43	Brightness Note 3
B	Shaft			AK-33	RS-3/16	SK9	DS-37	
R4	40K	½	109178					Horiz. Hold Note 4
R5A	1.5meg	½	109177	AB-742	A47-1.5meg-S	B11-138	U155	Vert. Hold Note 5
B	Shaft			AK-33	RS-3/16	SK9	DS-37	
R6A	200K	1/4	109180					AGC
B	4meg	1/4						Height
C	1.5meg	1/4						Vert. Linearity
D	100K							AGC Voltage Divider
E	47K							AGC Coupling
F	1meg							Vert. Linearity Volt. Div.
G	470K							Linearity Coupling (Vert)
H	500K							Linearity Limiter (Vert)

Note 1. Part #109175 used in Models 17LA040, -2, -3, -4, -7 & U, 17LA061, -2, -7, -8 & U without Remote Control.
Part #107182 used in Models 17LA032X, 17LA034 & U.
Note 2. Part #107186 used in Models 17LA032X, 17LA034 & U. Note 4. Part #107215 used in Models 17LA032X, 17LA034 & U.
Note 3. Part #107214 used in Models 17LA032X, 17LA034 & U. Note 5. Part #107213 used in Models 17LA032X, 17LA034 & U.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise stated.

ITEM No.	RATING	REMARKS
R7	2.2meg	
R8	180K	
R9	220K 1W	
R10	10K	
R11	6800Ω	
R12	1000Ω	
R13	56Ω	
R14	120K	
R15	1200Ω 1W	
R16	12Ω	
R17	6800Ω	
R18	18K	
R19	4700	
R20	3900Ω	
R21	330Ω	
R22	10K	
R23	6800Ω 5W	Pt. #107025 (IRC #PW5-6800Ω)
R24	1800Ω 2W	
R25	22K 2W	
R26	47Ω	
R27	150K	Note 1
R28	150K	
R29	1.6meg	
R30	3.3meg	(6.8meg) ▲
R31	100K	
R32	560K	
R33	470K	
R34	2200Ω 4W	Pt. #103352 (IRC #PW5-2200Ω)
R35	470Ω	
R36	100K	
R37	3300Ω	
R38	2200Ω	
R39	560K	
R40	47K	
R41	68K	
R42	33K	
R43	2.2meg	
R44	10K 1W	
R45	6.8meg	
R46	1.2meg	
R47	6.8meg	
R48	560K	Note 2
R49	22K	
R50	1000Ω	
R51	330Ω 4W	Pt. #107292 (IRC #PW5-330Ω
R52	3300Ω	
R53	150Ω	
R54	150Ω	
R55	3.3Ω (Cold)	Pt. #107464
R56	330K	
R57	180K	
R58	3300Ω	
R59	36K 1W	
R60	270K	
R61	56K	
R62	1meg	
R63	47Ω	
R64	10K 3W	Pt. #106253 (IRC #PW5-10K (8200Ω) †
R65	100Ω 4W	Pt. #107229 (IRC #PW5-100Ω *
R66	150K	
R67	4700Ω	Note 3
R68	1.0Ω	Pt. #104382
R69	27000Ω 7W	Pt. #107289A (IRC #PW10-27000
R70	1800Ω 2W	
R71	100Ω (Cold)	Pt. #104295
	200Ω (Hot)	
R72	120Ω (Cold)	Pt. #107191
R73	2.2meg	(820K) ▲
R74	4700Ω 7W	Pt. #106074 (IRC #PW10-4700Ω
R75	220K	
R76	6800Ω	

▲ Alternate Value.
* Some versions may use 47Ω in this application.
Later production models use 100Ω 7W (Pt. #104188).
† Value used in early production models.

Note 1. Used in Chassis KCS130M only.
Note 2. May not be used in some versions.
Note 3. May be part of Component Combination in some versions (Pt. #107544).

COMPONENT COMBINATIONS

ITEM No	USE	DESCRIPTION	RCA Victor PART No.	REPLACEMENT DATA
K2	2nd Video IF Amp.	1000mmf, 1000mmf, 220Ω, 220Ω, 15K, 150K, 150K	107277	Centralab PC-387
K3	3rd Video IF Cathode	4700mmf, 150Ω	109220	
K3	Vert. Blanking	4700mmf, 22K	107283	
K4	Sound IF Grid	56mmf, 47K	104329	Centralab RC-421
K5	Sound IF Cathode	10000mmf, 82Ω	107278	Centralab PC-382 Sprague FSC-18
K6	Audio Detector Cathode	10000mmf, 10000mmf, 560Ω, 2200Ω, 4700Ω	107276	Centralab PC-380
K7	Sync Sep. Grid	150mmf, 270K, 2.2meg, 2.7meg	107200	Centralab PC-381
K8	Sync Sep. Plate	560mmf, 27K	107492	
K9	Vert. Integrator	560mmf, 560mmf, 560mmf, 1800mmf, 22K, 56K, 56K	109078	
K10	Vert. Feedback	1200mmf, 2200mmf, 3900mmf, 15K, 33K, 27K *	109077	* In some versions, 27K Resistor is a separate component.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	1st Video IF	107202				
L2	4.5MC Trap	107203				
L3	Fil. Choke (4th)	73477		BC-561	4602	RTC-8515
L4	2nd Video IF	109071				
L5	Fil. Choke (4th)	73477		BC-561	4602	RTC-8515
L6	3rd Video IF	109058				
L7	4th Video IF	109076				
L8	Peaking (56uh)	101619		TV-180	6176	RTC-8593
L9	Peaking (250uh)	101267		TV-185	6181	RTC-8598
L10	RF Choke (3.5uh)	101871		SW-631	4609	RTC-8519
L11	4.5MC Trap	104903				
L12	Peaking (510uh)	105516		TV-204	6174	RTC-8592
L13	Peaking (390uh)	104230		TV-199	6155	RTC-8587
L14	1st Sound IF	104136				
L15	2nd Sound IF	107204				
L16	Quadrature	105795				
L17	RF Choke (8.2uh)	107385		BC-566	4611	RTC-8521
L18	RF Choke (8.2uh)	107385		BC-566	4611	RTC-8521

Includes 39mmf Capacitor
Includes (two) 12mmf Capacitors
Includes 10mmf Capacitor & 120K Res.

COILS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Miller PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.
L19A	Horiz. Osc.	107284						
B	Horiz. Stabilizing							
L20	Width Coil (1.6 to 12MH)	105522		MWC-6	6322	QRC109	WC-8	WC-22 WLC-13①

① Do not use Tap.

FILTER CHOKE

ITEM No.	RATINGS CURRENT (Measured)	DC RES.	INDUCTANCE @ CURRENT	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
L21	.260A	50Ω	.9 Hy. 1000 ma	100386	C-3296 ①	C-2343 ①	26C44 ①	C-34X	① Drill new mounting hole.

TRANSFORMER (POWER)

ITEM No	RATING PRI.	SEC 1	SEC 2	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No	NOTES
T1	117V ③ 2.2A (Tuning) 1.7A(Not Tuning)	110V ③ .85A AC	6.3V ③ 10A	109069				R-123BA	

TRANSFORMERS (SWEEP CIRCUITS)

ITEM No.	USE	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Rogers PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	Vert. Output	109066			26S14		A-140X	
T3	Yoke Horiz. (17MH) (110°) Vert. (14MH)	109070			DY-27A ①③		Y-48 ①②	Y-80-1
	Rear Cover and Centering Device	1402846-1						
T4	Horiz. Output	109068	HVO-116 *①		HO-289 *③		FLY-150*③	D-139 *③

① Use original rear cover and centering device. Connect same as original.
② Use original damping network if necessary.
③ Drill new mounting hole(s).

*HORIZONTAL OUTPUT TRANSFORMER CONNECTION DATA

Use Original Width Coil Unless Replacement Type Is Listed

ORIGINAL TERMINAL CONNECTIONS	Merit Replacement Connections	Rogers Replacement Connections	Stancor Replacement Connections	Thordarson Replacement Connections	Triad Replacement Connections
5	5	5	5	5	5
4	4	4	4	4	4
3	3	3	3	3	3
2	2	2	2	2	2
1	1	1	1	1	1

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI.	SEC.	REPLACEMENT DATA RCA Victor PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T5	7900Ω	3-4Ω	109067	A-3020	A-3856	26S48	S-18Z	

SPEAKER

ITEM No.	TYPE SIZE	FIELD	V. C. IMP.	REPLACEMENT DATA RCA Victor PART No.	QUAM PART No.	NOTES
SP1	3" x 5"	PM	3-4Ω	107262	35A05	

POWER RECTIFIERS

ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA RCA Victor PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.260A	106379 *	1N1763 *	40H *	SR500 *	* Silicon
M2	.260A	106379 *	1N1763 *	40H *	SR500 *	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA RCA Victor PART No. FUSE	HOLDER	LITTELFUSE PART No. FUSE	HOLDER	BUSS PART No. FUSE	HOLDER
M3	2" length #28 wire							
M4	2" length #28 wire							

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA RCA Victor PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M5	Clevite	76675B		1N295	1N295	Video Detector (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M6	Tuner	109157	VHF with UHF Provisions (KRK87L) Ch. KCS130K, M
			STANDARD COIL REPLACEMENT #GG-4230A
	Tuner	107976	VHF (KRK70M) Ch. KCS130A, N
	Tuner	109141	VHF with UHF Provisions (KRK71W) Ch. KCS130H
	Tuner	107980	VHF with UHF Provisions (KRK71N) Ch. KCS130B
	Tuner	109144	VHF (KRK70U) Ch. KCS130F
	Tuner	106886	UHF (Less Gears) (KRK86AE) Ch. KCS130H
	Tuner	106499	UHF (Less Gears) (KRK86U) Ch. KCS130B
M7	Antenna	109139	JFD REPLACEMENT #TA-398, 2 required
	Antenna	107260	JFD REPLACEMENT #TA-389, Model 17LA032X (Only)
M8	Switch	109148	Touch Bar Tuning (Power Tuning)
M9	Switch	109151	Station Stopper & Mute (Power Tuning)
M10	Switch	109217	Pneumatic, Master Off-On (Power Tuning)
M11	Motor	109149	Power Tuning
	Printed Board	109072	Video & Sound IF, Sync Circuits (Less Tubes)
	Printed Board	109073	Deflection (Less Tubes)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Safety Glass	109140	Window, Models 17LA043, 17LA043U, 17LA040, 17LA040U, 17LA042, 17LA042U, 17LA044, 17LA044U, 17LA047, 17LA047U, 17LA061, 17LA061U, 17LA062, 17LA062U, 17LA067, 17LA067U, 17LA068, 17LA068U, 17LAR044, 17LAR062, 17LAR067
Safety Glass	107253	Window, Models 17LA032X, 17LA034, 17LA034U
Mask	107599	Blank Phenolic, Model 17LA032X
Mask	107647	Tuskon Ivory Phenolic, Model 17LA034
Mask	107648	Ivory Phenolic, Model 17LA034U
Mask	109443	Autumn Smoke Phenolic, Model 17LA043
Mask	109444	Autumn Smoke Phenolic, Model 17LA043U
Mask	109304	Ash Gray Phenolic, Model 17LA062, 17LA068
Mask	109305	Ash Gray Phenolic, Model 17LA062U, 17LA068U
Mask	107772	Autumn Smoke
Mask	109200	Black Phenolic, Model 17LA042
Mask	109201	Black Phenolic, Model 17LA042U
Mask	109206	Ivory Phenolic, Less Overlays, Models 17LAR044, 17LAR062, 17LAR067
Mask	109198	Seacrest Green Phenolic, Model 17LA040
Mask	109199	Seacrest Green Phenolic, Model 17LA040U
Mask	109202	Tuskon Ivory Phenolic, Models 17LA044, 17LA047, 17LA061, 17LA067
Mask	109203	Tuskon Ivory Phenolic, Models 17LA044U, 17LA047U, 17LA061U, 17LA067U
Knob	109128	VHF and UHF Channel Selector, Model 17LA040, 17LA040U, 17LA042, 17LA042U, 17LA044, 17LA044U, 17LA043, 17LA043U
Knob	107270	VHF and UHF Channel Selector, Models 17LA032X, 17LA034, 17LA034U
Knob	107269	UHF Channel Selector, Model 17LA034U
Knob	107129	Channel Selector Indicator, VHF, Models 17LA040, 17LA040U, 17LA042, 17LA042U, 17LA044, 17LA044U, 17LA047, 17LA047U, 17LA061, 17LA061U, 17LA062, 17LA062U, 17LA067, 17LA067U, 17LA068, 17LA068U
Knob	109129	VHF Channel Selector Indicator, Model 17LA043, 17LA043U
Knob	109131	UHF Channel Selector Indicator, Models 17LA043U, 17LA040U, 17LA042U, 17LA044U, 17LA047U, 17LA061U, 17LA062U, 17LA067U, 17LA068U
Knob	107266	UHF Channel Selector Indicator, Model 17LA034U
Knob	107263	Fine Tuning, Models 17LA032X, 17LA034, 17LA034U
Knob	109130	Fine Tuning, Volume, Contrast, Brightness, Vertical Hold, Horizontal Hold, Models 17LA043, 17LA043U, 17LA040, 17LA040U, 17LA042, 17LA042U, 17LA044, 17LA044U, 17LAR044, 17LAR062, 17LA061, 17LA061U, 17LA062, 17LA062U, 17LA067, 17LA067U, 17LA068, 17LA068U, 17LA047, 17LA047U
Knob	107264	Volume, Contrast, Models 17LA032X, 17LA034, 17LA034U
Knob	107265	Brightness, Horizontal Hold, Vertical Hold, Models 17LA032X, 17LA034, 17LA034U
Cabinet	24730	Tuskon Ivory, Metal, Model 17LA043 and 17LA043U
Cabinet	24599	Black Metal, Model 17LA032X
Cabinet	24753	Tuskon Ivory, Metal, Model 17LA034, 17LA034U
Cabinet	24754	Carrying, Ivory Only, Models 17LA032X, 17LA034, 17LA034U, 17LA043, 17LA043U, 17LA061, 17LA061U, 17LA062, 17LA062U, 17LA067, 17LA067U, 17LA068, 17LA068U, 17LAR061, 17LAR062, 17LAR067
Handle	107691	Handle, Brass, Models 17LA034, 17LA034U, 17LA040, 17LA040U, 17LA044, 17LA044U, 17LA047, 17LA047U, 17LAR044, 17LA061, 17LA061U, 17LA067, 17LA067U, 17LAR067
Link	107259	Handle, Chrome, Models 17LA043, 17LA043U, 17LA042, 17LA042U, 17LA062, 17LA062U, 17LA068, 17LA068U, 17LAR068
Link	109172	

WIRING DATA

High Voltage Lead	Use BELDEN No. 8869
Shielded Hook-up Wire	Use BELDEN No. 8885 (Single Conductor) 8738 (Two Conductor)
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8534 (Stranded) Available in Ten Colors
Power Cord (Interlock Type)	Use BELDEN No. 8874
300Ω Tuner Input Lead	Use BELDEN No. 8225
300Ω Antenna Lead-In	Use BELDEN No. 8230 or 8275
Antenna Rotor Cable	Use BELDEN No. 8464 (Flat) or 8484 (Round) - 4 Conductor 8485 (Round) - 5 Conductor 8488 (Round) - 8 Conductor

REMOTE CONTROL RECEIVER PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V15	1st 40KC Amp.	6AD8	V18	Channel Sel. Relay Control - Volume Relay Control	6CM7
V16	2nd and 3rd 40KC Amp.	12AX7			
V17	40KC Driver - 40. 75KC Rect. - 43. 25KC Rect.	6BN8			

RCA VICTOR CHASSIS KCS130A, B, F, H, K, M, N, KRS24A, B; KRT1A, B

FOLDER 2

REMOTE CONTROL RECEIVER PARTS LIST (Continued)

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	RCA Victor PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C62	50	25	94667	PRS1265	BBR50-25	TC29	TD-50-25	TVA-1206	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING			REMARKS	REPLACEMENT DATA						
					AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C63	330				BPD-00033	DD-331	L10T33	CCD-331	B-333	10TS-T33
C64	.1	400V			P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C65	150				DI-150	DD-151	L10T15	CCD-151	B-315	10TS-T15
C66	120				DI-120	DD-121	L10T12	CCD-121	GP312	10TS-T12
C67	120				DI-120	DD-121	L10T12	CCD-121	GP312	10TS-T12
C68	.47	200V			P288N-47		CUB2P47	2DP-5-474	GEM-2047	2TM-P47
C69	.22	400V			P488N-22		CUB2P47	4DP-5-223	GEM-4022	4TM-P22
C70	120				DI-120	DD-121	L10T12	CCD-121	GP312	10TS-T12
C71	.1	200V			P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C72	.047	200V	10%		V84C2S47-10%		PM2S47	4DP-3-473	GEM-1615	2TM-S47
C73	680		10%		1469-00068		5R5T68	CM-19B-681K	MCJ249	MS-368
C74	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C75	10000			Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C76	.047	400V		Note 1	P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C77	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C78	.033	200V	10%		V84C2S33-10%		PM4S33	4DP-2-333	GEM-1613	6TM-S33
C79	680		10%		1469-00068		5R5T68	CM-19B-681K	MCJ249	MS-368
C80	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C81	10000				BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

Note 1. May not be used in some versions.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R77	100K	
R78	150K	
R79	470K	
R80	1meg	
R81	1meg	
R82	2200Ω 1W	
R83	100K	
R84	100K	

ITEM No.	RATING	REMARKS
R85	100K	
R86	100K	
R87	100K	
R88	270K	
R89	2.2meg	
R90	39K 1W	
R91	2.2meg	
R92	1meg	

ITEM No.	RATING	REMARKS
R93	2.2meg	
R94	1meg	
R95	3.9meg	Note 1
R96	3.9meg	Note 1
R97	12K	
R98	18K	(47K) *
R99	5600Ω	(12K) *
R100	2200Ω	(10K) *

* Alternate Value.

Note 1. May not be used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		RCA Victor PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L22	40.75KC Coil	107539				
L23	43.25KC Coil	107539				

MISCELLANEOUS

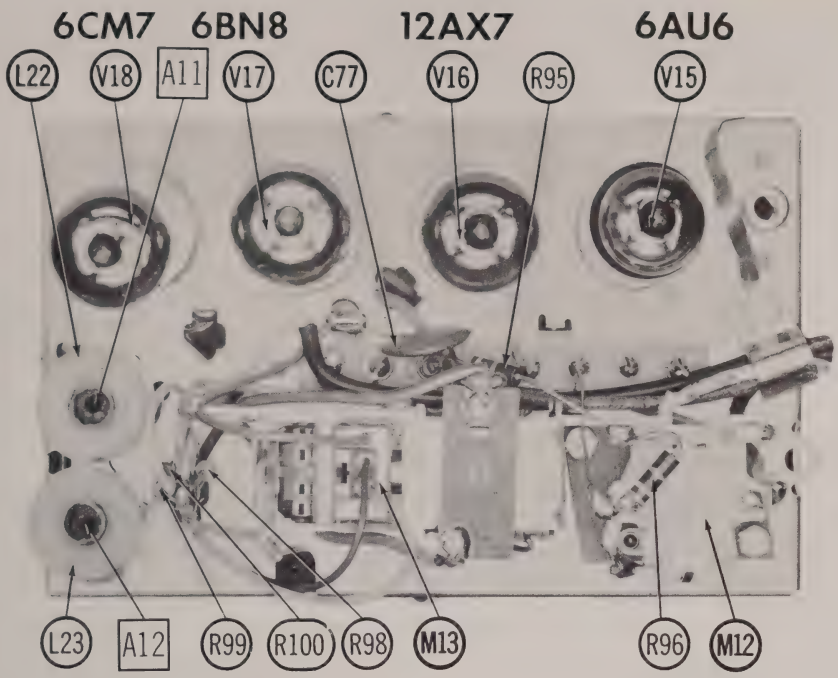
ITEM No.	PART NAME	RCA Victor PART No.	NOTES
M12	Relay	107405	Volume
M13	Relay	109124	Stopper

REMOTE CONTROL TRANSMITTER PARTS LIST AND DESCRIPTIONS

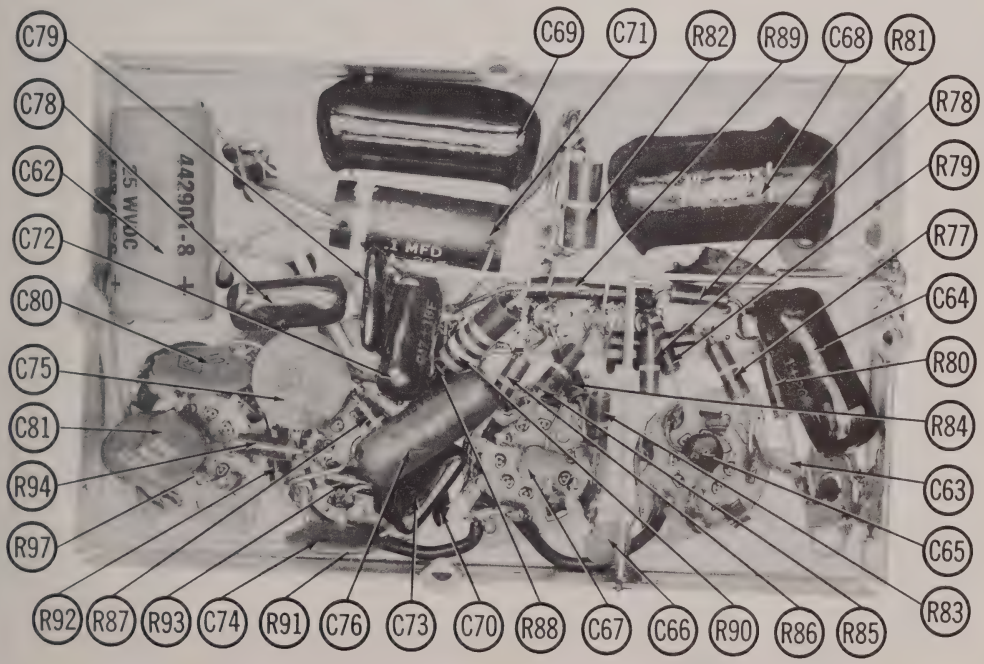
CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

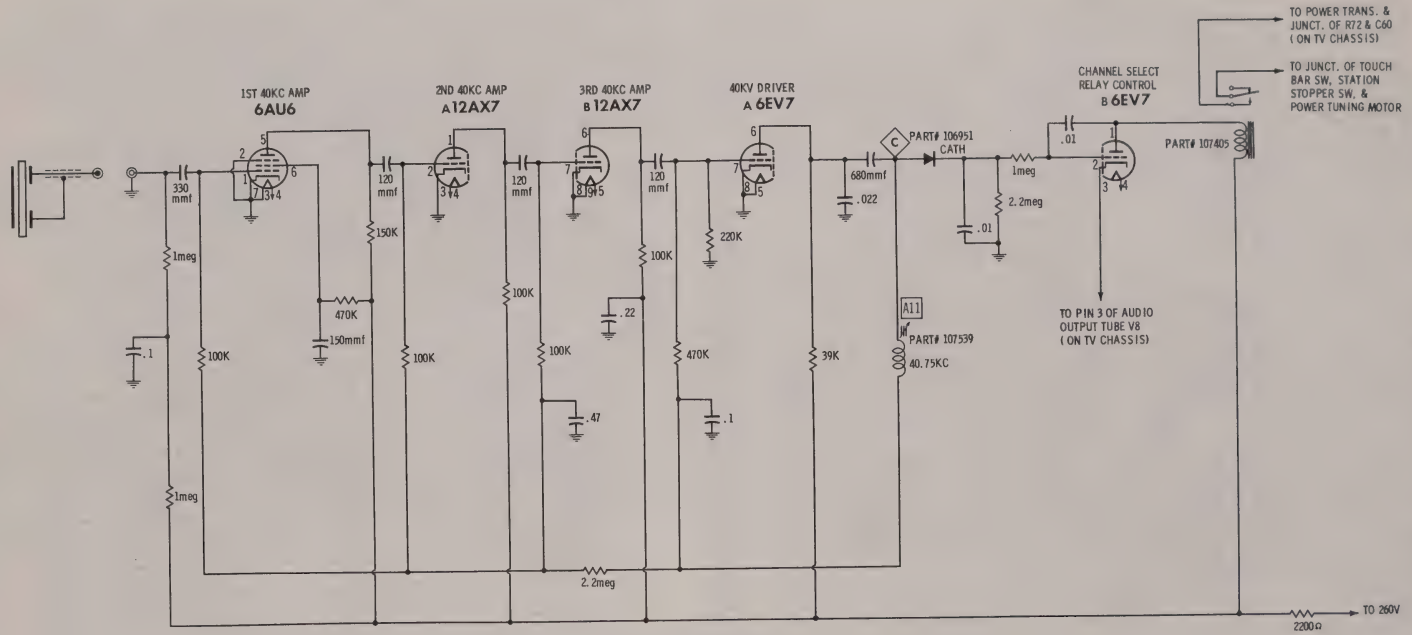
NAME	PART NO.	DESCRIPTION
Button	109120	Channel, Off, Remote Transmitter, KRT1B
Button	109121	Volume, Remote Transmitter, KRT1B
Button	109123	Channel, Off, Remote Transmitter, KRT1A
Cabinet	109125	Bottom, Remote Transmitter, KRT1B, KRT1A
Cabinet	109112	Top, Remote Transmitter, KRT1B, KRT1A



REMOTE CONTROL RECEIVER KRS24B-TOP VIEW



REMOTE CONTROL RECEIVER KRS24B-BOTTOM VIEW



REMOTE CONTROL ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .001mfd to pin 1 (grid) of 1st 40KC Amp. Low side to chassis.	20.375KC		Diode probe to point ◇. Common to chassis.	A11	Adjust for maximum deflection..

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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REMOTE CONTROL RECEIVER KRS24A

TUNER ALIGNMENT INSTRUCTIONS

KRK87L

PRE-ALIGNMENT INSTRUCTIONS

Suggested Alignment Tools: A201 thru A212 .... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A213, A214 ..... GENERAL CEMENT #8697, 9291, 9294
WALSCO #2520, 2522, 2523, 2524, 2534, 2537

VHF OSCILLATOR ALIGNMENT

Connect the negative lead of a 3 volt bias supply to point (T). Positive to chassis.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Set the Fine Tuning to the Center of its range.
Connect a 39 ohm composition resistor in series with a 1000mmf capacitor across the tuner output jack.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
1.	Across VHF antenna terminals thru matching pad (See Fig. 201).	257MC	13	Vert. Amp. thru 10K to point (U). Low side to chassis.	A201	Adjust for zero beat.
	"	251MC	12	"	A202	"
	"	245MC	11	"	A203	"
	"	239MC	10	"	A204	"
	"	233MC	9	"	A205	"
	"	227MC	8	"	A206	"
	"	221MC	7	"	A207	"
	"	129MC	6	"	A208	"
	"	123MC	5	"	A209	"
	"	113MC	4	"	A210	"
	"	107MC	3	"	A211	"
	"	101MC	2	"	A212	"

VHF RF AND MIXER ALIGNMENT

Connect Bias as under "VHF Oscillator Alignment".
Connect the synchronized sweep voltage from the sweep generator to the horizontal input of the oscilloscope for horizontal deflection.
The generator output lead should be terminated with its characteristic impedance, usually 50 ohms.
Use only enough sweep generator output to provide a usable pattern on scope.
Leave tuner output jack terminated as under "VHF Oscillator Alignment".

	SWEEP GENERATOR COUPLING	SWEEP GENERATOR FREQUENCY	MARKER GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
2.	Across VHF antenna terminals thru matching pad (Fig. 201).	195MC (10MC Swp.)	193.25MC 197.75MC	10	Vert. Amp. thru 10K to point (U). Low side to chassis.	A213, A214	Adjust for maximum gain and symmetry of response similar to Fig. 202 with markers as shown.
	"	213MC	211.25MC 215.75MC	13	"	A215	If necessary, adjust to correct for improper tilt.
	"	207MC	205.25MC 209.75MC	12		A216	Adjust by expanding or compressing coil turns.
	"	201MC	199.25MC 203.75MC	11		A217	"
	"	195MC	193.25MC 197.75MC	10		A218	"
	"	189MC	187.25MC 191.75MC	9		A219	"
	"	183MC	181.25MC 185.75MC	8		A220	"
	"	177MC	175.25MC 179.75MC	7		A221	"
	"	85MC	83.25MC 87.75MC	6		A222	"
	"	79MC	77.25MC 81.75MC	5		A223	"
	"	69MC	67.25MC 71.75MC	4		A224	"
	"	63MC	61.25MC 65.75MC	3		A225	"
	"	57MC	55.25MC 59.75MC	2		A226	"

If bandwidth is out of limits on most high VHF channels (7-13), adjust A227 by expanding or compressing coil turns.

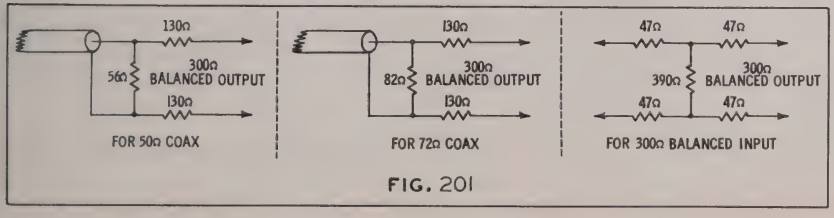
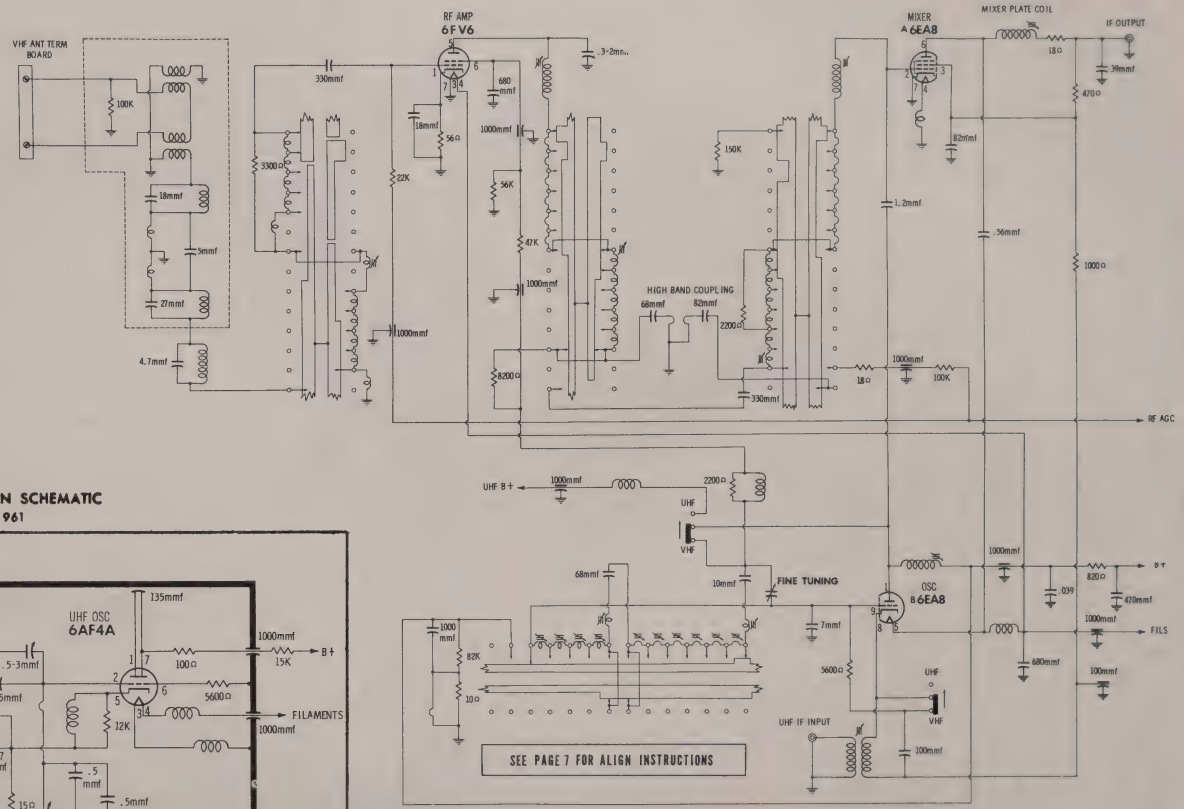


FIG. 201

FIG. 202



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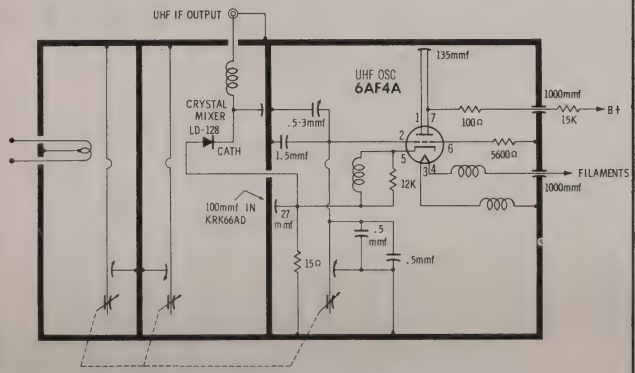
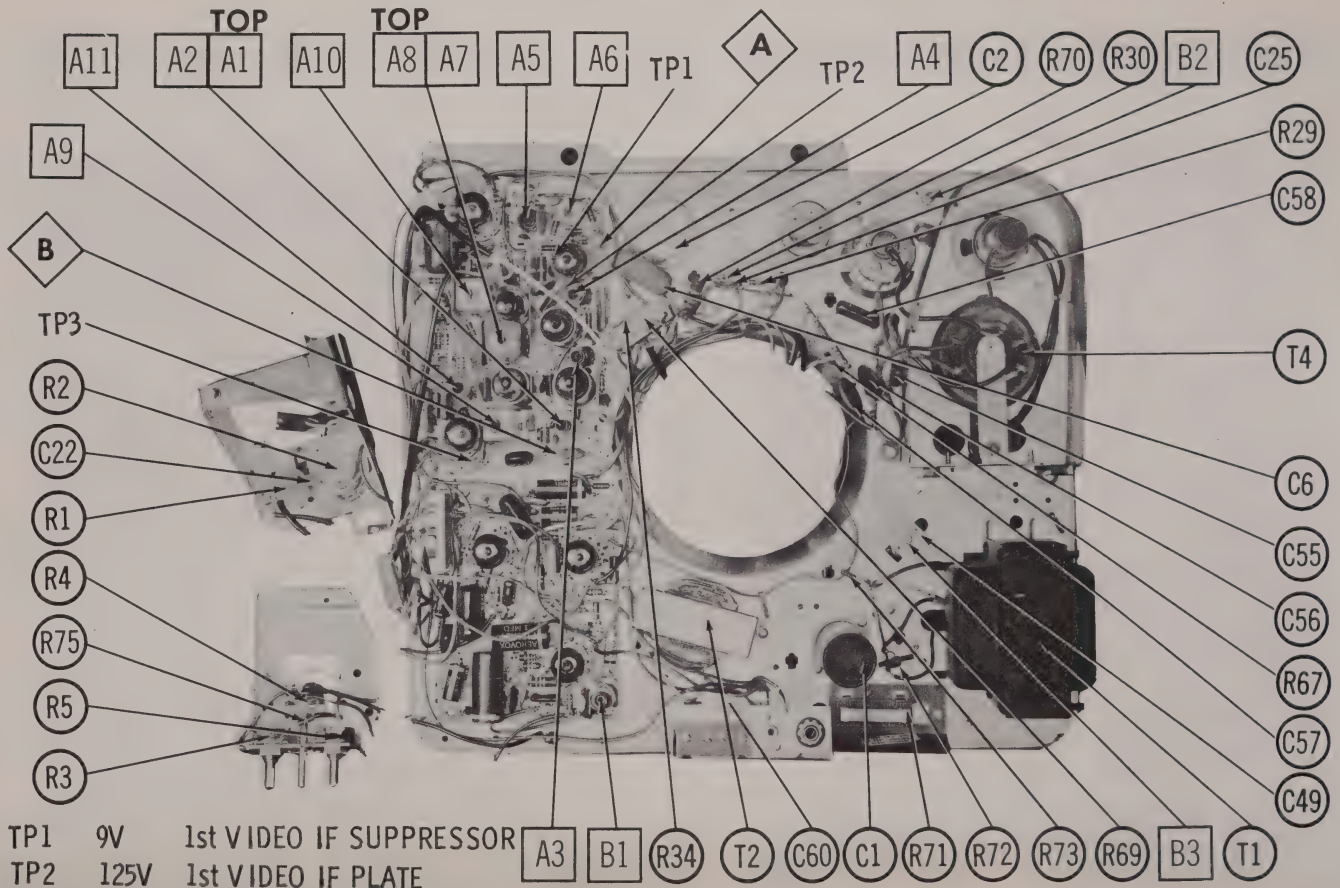


UHF TUNER KRK66AE, U, W

VHF TUNER with UHF provisions KRK71N, P, W

SWEEP, SYNC, AGC PRINTED BOARD



TP1 9V 1st VIDEO IF SUPPRESSOR
TP2 125V 1st VIDEO IF PLATE
TP3 -1.5V VIDEO AMP GRID

TV CHASSIS-TOP VIEW

ALIGNMENT INSTRUCTIONS (cont)

4.5MC TRAP ALIGNMENT

Set Contrast fully clockwise.

	DUMMY ANTENNA	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	CHANNEL	CONNECT SCOPE	ADJUST	REMARKS
12.	.01mfd	High side to point (B). Low side to chassis.	4.5MC (400∿ Mod)	Any non-interfering channel	Vert. Amp. thru demodulator probe to cathode of picture tube. Low side to chassis.	All	Adjust for MINIMUM 400∿ indication on scope.

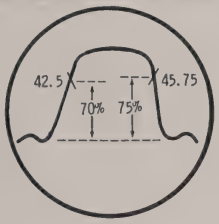


FIG. 1

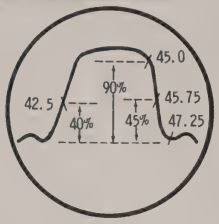


FIG. 2

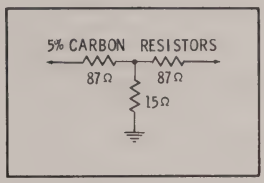


FIG. 3

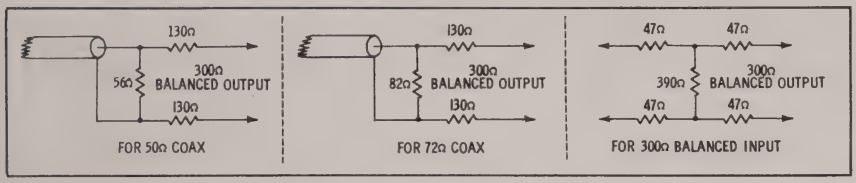


FIG. 4

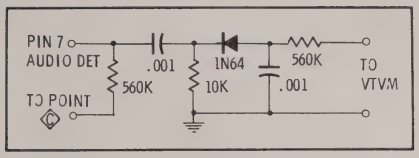
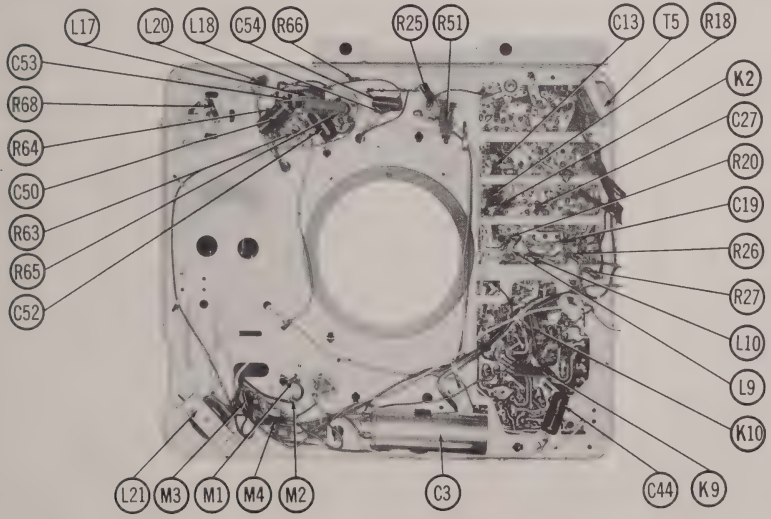
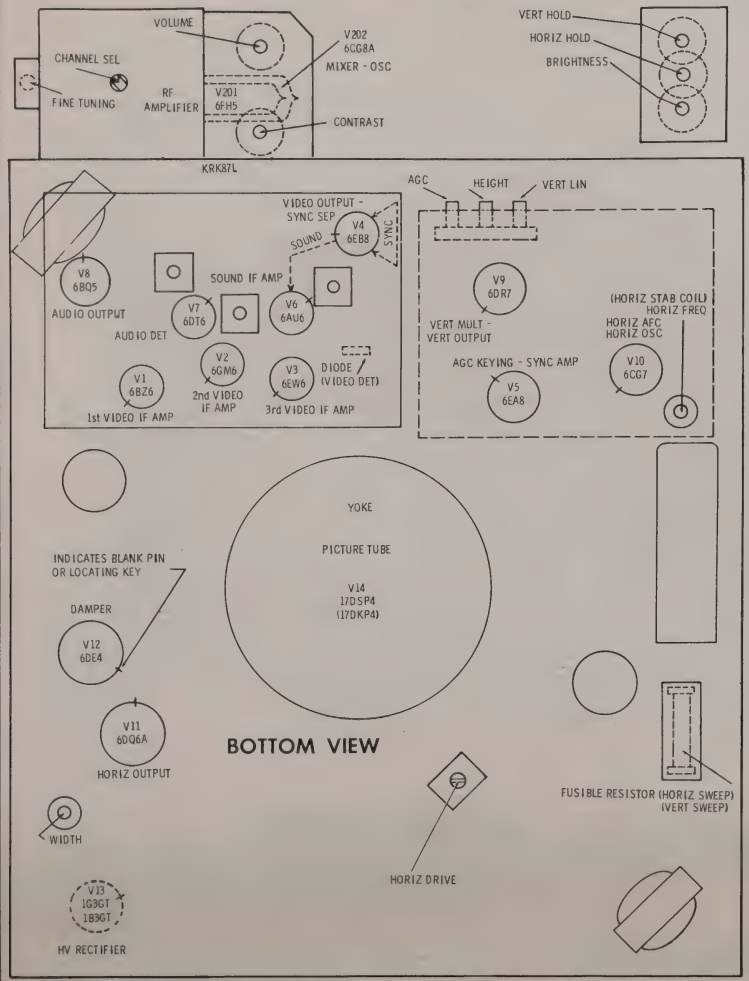


FIG. 5



TV CHASSIS-BOTTOM VIEW

TUBE PLACEMENT CHART

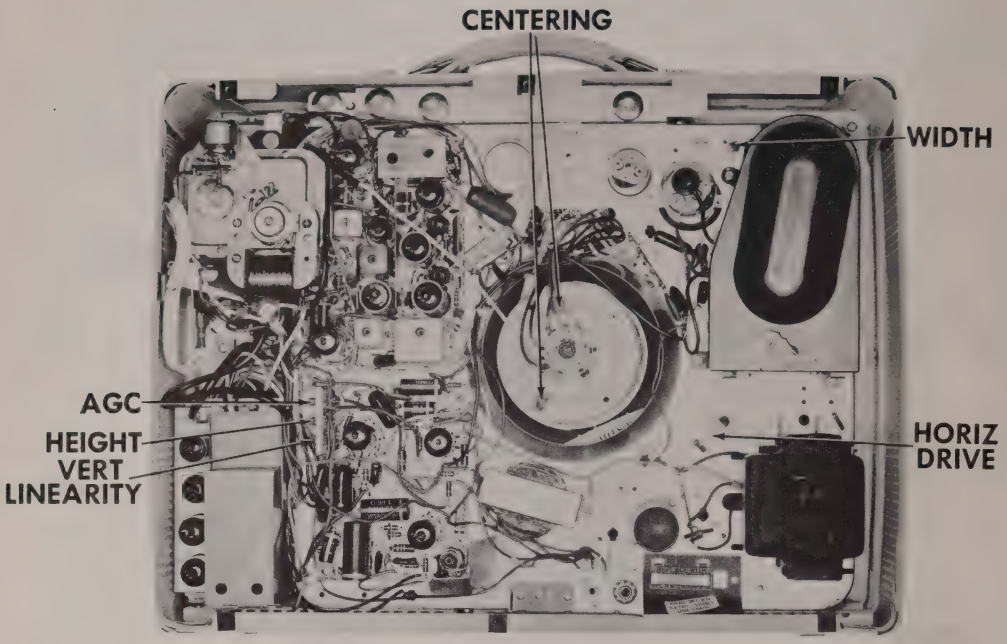


RESISTANCE MEASUREMENTS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6BZ6	120K	1250Ω	0Ω	.1Ω	†100K	†100K	1200Ω		
V2	6GM6	150K	165K	0Ω	.1Ω	†270Ω	†270Ω	165K		
V3	6EW6	0Ω	150Ω	0Ω	.1Ω	†3000Ω	†3000Ω	150Ω		
V4	6EB8	0Ω	4.9meg	†2.2meg	.1Ω	0Ω	200Ω	4200Ω	†22K	†8500Ω
V5	6EA8	†14K	•30K	†50Ω	.1Ω	0Ω	500K	†6700Ω	0Ω	†560K
V6	6AU6	47K	0Ω	.1Ω	0Ω	†6700Ω	†6700Ω	82Ω		
V7	6DT6	4.2Ω	560Ω	0Ω	.1Ω	†560K	†9000Ω	470K		
V8	6BQ5	NC	0Ω	470Ω	0Ω	.1Ω	NC	†2600Ω	NC	†2200Ω
V9	6DR7	†445Ω	NC	•2meg	0Ω	.1Ω	•†2.5meg	•2.5meg	0Ω	330Ω
V10	6CG7	†50Ω	•700K	•600K	0Ω	.1Ω	†56K	•100K	75Ω	0Ω
V11	6DQ6A	TP	0Ω	NC	†10K	1meg	TP	.1Ω	100Ω	TOP CAP †11Ω
V12	6DE4	NC	NC	¶	NC	†250Ω	TP	.1Ω	0Ω	
V13	1G3GT 1B3GT	PINS 1 THRU 8 HAVE INFINITE RESISTANCE								TOP CAP †450Ω
V14	17DSP4	0Ω	22K	†1.9meg	0Ω	NC	NC	•200K	.1Ω	
V15	6AU6	2.7meg	0Ω	0Ω	.1Ω	†150K	†470K	0Ω		
V16	12AX7	†100K	2.7meg	0Ω	.1Ω	.1Ω	†100K	2.7meg	0Ω	0Ω
V17	6BN8	370K	2.2meg	2.2meg	.1Ω	0Ω	370K	†41K	100K	0Ω
V18	6CM7	†5500Ω	NC	12K	.1Ω	0Ω	†2500Ω	3.2meg	3.2meg	12K
V201	6FH5	47Ω	2.3meg	0Ω	.1Ω	†5700Ω	0Ω	47Ω		
V202	6CG8A	4700Ω	†9500Ω	0Ω	0Ω	.1Ω	†5700Ω	†4700Ω	0Ω	220K
ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
• THIS READING WILL VARY. CONTROL SET FOR NORMAL OPERATION.
† MEASURED FROM OUTPUT OF M1.
‡ MEASURED FROM PIN 3 OF V12.

NC NO CONNECTION
TP TIE POINT



CABINET—REAR VIEW

HORIZONTAL SWEEP CIRCUIT ADJUSTMENTS

Before adjusting the Stabilizing Slug (B1), the Horizontal Drive and Width must be properly adjusted.

Set the Horizontal Hold Control to the pull-in point. Turn the Width Slug (B2) fully counterclockwise and turn Horizontal Drive Trimmer (B3) counterclockwise until a bright vertical line appears near the center of the raster, then turn clockwise until the line just disappears. If no line appears, leave B3 fully counterclockwise.

With the Brightness Control set to normal level, adjust the Width Slug B2 for an overscan of approximately 3/4 inch on each side of the screen at normal line voltage.

Connect a short jumper across the terminals of the Horizontal Stabilizer Coil (L19B) and short the grid (pin 2) of the 6CG7 (V10) to chassis with a small screwdriver.

Adjust the Horizontal Hold Control for an upright picture (may appear to float back and forth across the screen). Remove the jumper from across L19B and adjust B1 to again obtain a picture in an upright position. When B1 is properly adjusted, alternately shorting and removing short should not cause the picture to lose sync but instead cause a slight sideways shift of the picture. Remove the short from the grid of the Horizontal Oscillator.

DISASSEMBLY INSTRUCTIONS

CHASSIS AND PICTURE TUBE REMOVAL

1. Remove 7 push-on type knobs in front of cabinet.
2. Remove 6 screws holding rear cover and disconnect antenna leads.
3. Remove rear cover.
4. Remove speaker leads, mike lead, and knobs.
5. Remove 4 chassis bolts at bottom and 2 screws holding chassis at top.
6. Remove 3 screws holding Remote Receiver.
7. Remove Remote Receiver Chassis and TV Chassis (with Picture Tube).

PICTURE TUBE REMOVAL

The picture tube may be removed out front of cabinet by following instructions (page 1) of Safety Glass Cleaning and Removal. Disconnect hi voltage lead, yoke plug, and picture tube socket. Loosen clamp around picture tube bell and remove picture tube.

PHOTOFACT® Folder

AIRLINE
MODEL GTC-1025A

AIRLINE
MODEL GTC-1025A

AIRLINE
MODEL GTC-1025A

TRADE NAME	Airline Model GTC-1025A
SUPPLIER	Montgomery Ward & Co., 619 Chicago Ave., Chicago 7, Illinois
TYPE SET	Battery Operated Transistorized Phono Amplifier With 45 RPM Manual Record Player
POWER SUPPLY	6 Volts DC RATING 6MA @ 6 Volts DC (Less Motor)

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

KR242

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	TS-739A	AF Amplifier	2N408	2N362		PNP
X2	TS-739B	Driver	2N408	2N362		PNP
X3	TS-740	Output	2N270	2N633		PNP
X4	TS-740	Output	2N270	2N633		PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	AIRLINE PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	10	10	EC83	XPP-10010	NLW10-10	TT12X10	ML10-15	TE-1114	
C2	100	10	EC82	PTT10100	NLW100-10	TT15X100	ML100-15	TE-1119.3	
C3	100	10	EC82	PTT10100	NLW100-10	TT15X100	ML100-15	TE-1119.3	
C4	100	10	EC82	PTT10100	NLW100-10	TT15X100	ML100-15	TE-1119.3	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	2000		BPD-002	DD-202	BYA10D2	CCD-202	GP220	5GA-D20
C6	50000		BPD-05	DD-503	H-05S5		GP150	5HK-S50
C7	4700		BPD-0047	DD-472	BYA10D47M	CCD-472	GP247	5GA-D47
C8	50000		BPD-05	DD-05S5	H-05S5		GP150	5HK-S50
C9	50000	Note 1	BPD-05	DD-503	H-05S5		GP150	5HK-S50

Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	AIRLINE PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A B	500K Shaft	½	VC-201	B-60 Not Req.	A47-500K-Z KSS-3	Q13-133 Not Req.	U48 Not Req.	Volume

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	470K	
R3	470K	
R4	8200Ω	
R5	1000Ω	

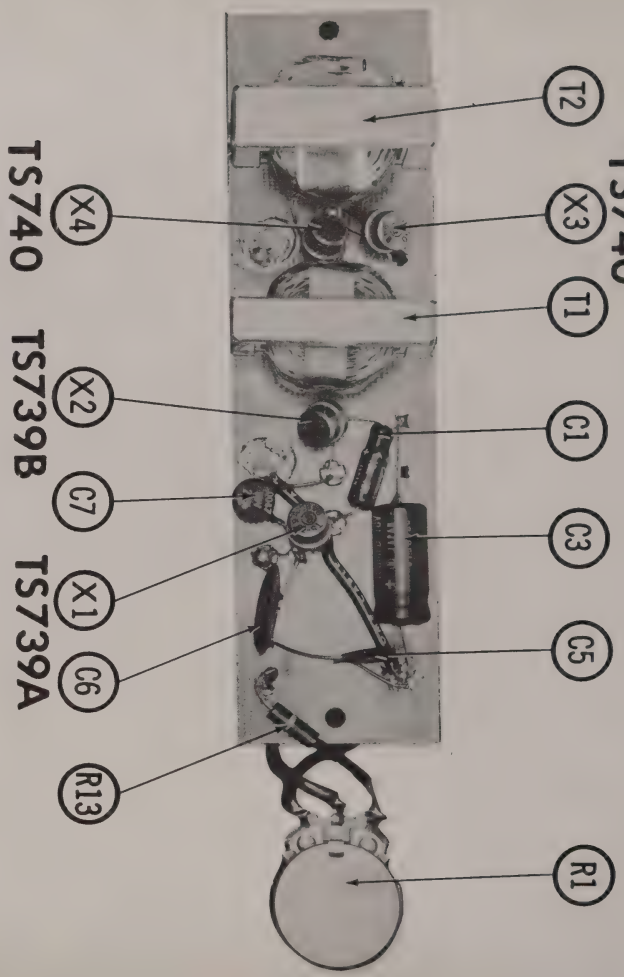
ITEM No.	RATING	REMARKS
R6	33K	
R7	4700Ω	
R8	390Ω	
R9	470Ω	

ITEM No.	RATING	REMARKS
R10	3900Ω	
R11	100Ω	
R12	3.3Ω	
R13	220K	

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1.5	1	AT-48					

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	AIRLINE PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	350Ω CT	3-4Ω	AT-49					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AIRLINE PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	SPK-38	4A1	

BATTERIES

ITEM No.	VOLTAGE	AIRLINE PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	1½V	62-23		230 *		A100 *		M-13R*	* 4 Required

PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	AIRLINE PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2	60-78①		93T-1	Not Req.	S1-1	Not Req.	8T-S	Not Req.	① Includes 2 needles. To use second needle, pull cartridge from holder, turn over 180°, and replace in holder.

MISCELLANEOUS

ITEM No.	PART NAME	AIRLINE PART No.	NOTES
M3	Motor Tone Arm	LP-3280 N-11095	45 RPM Motor

CABINETS & CABINET PARTS

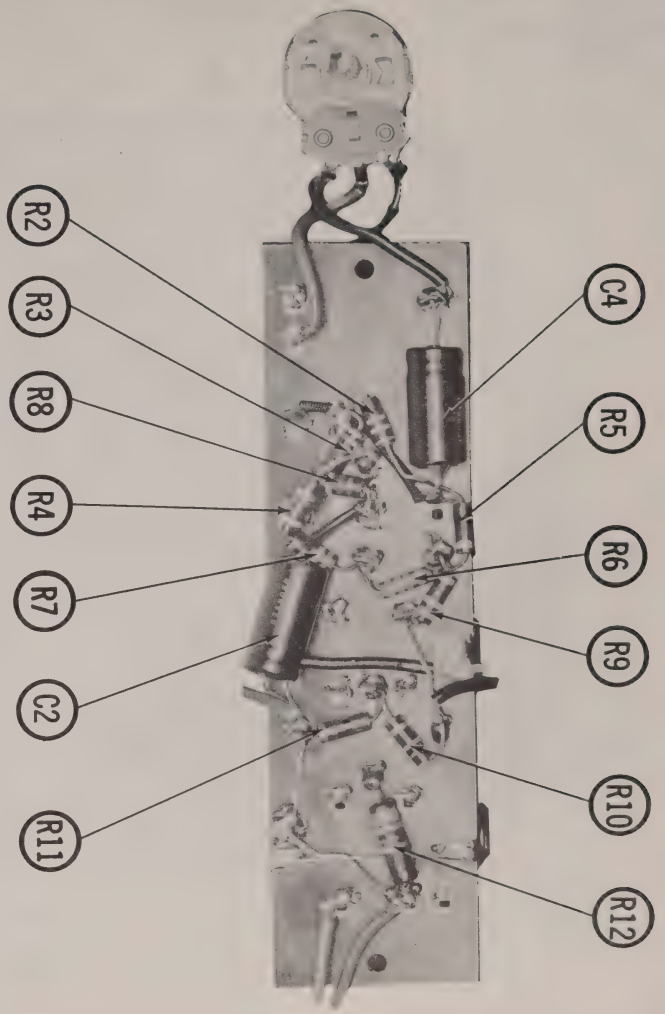
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

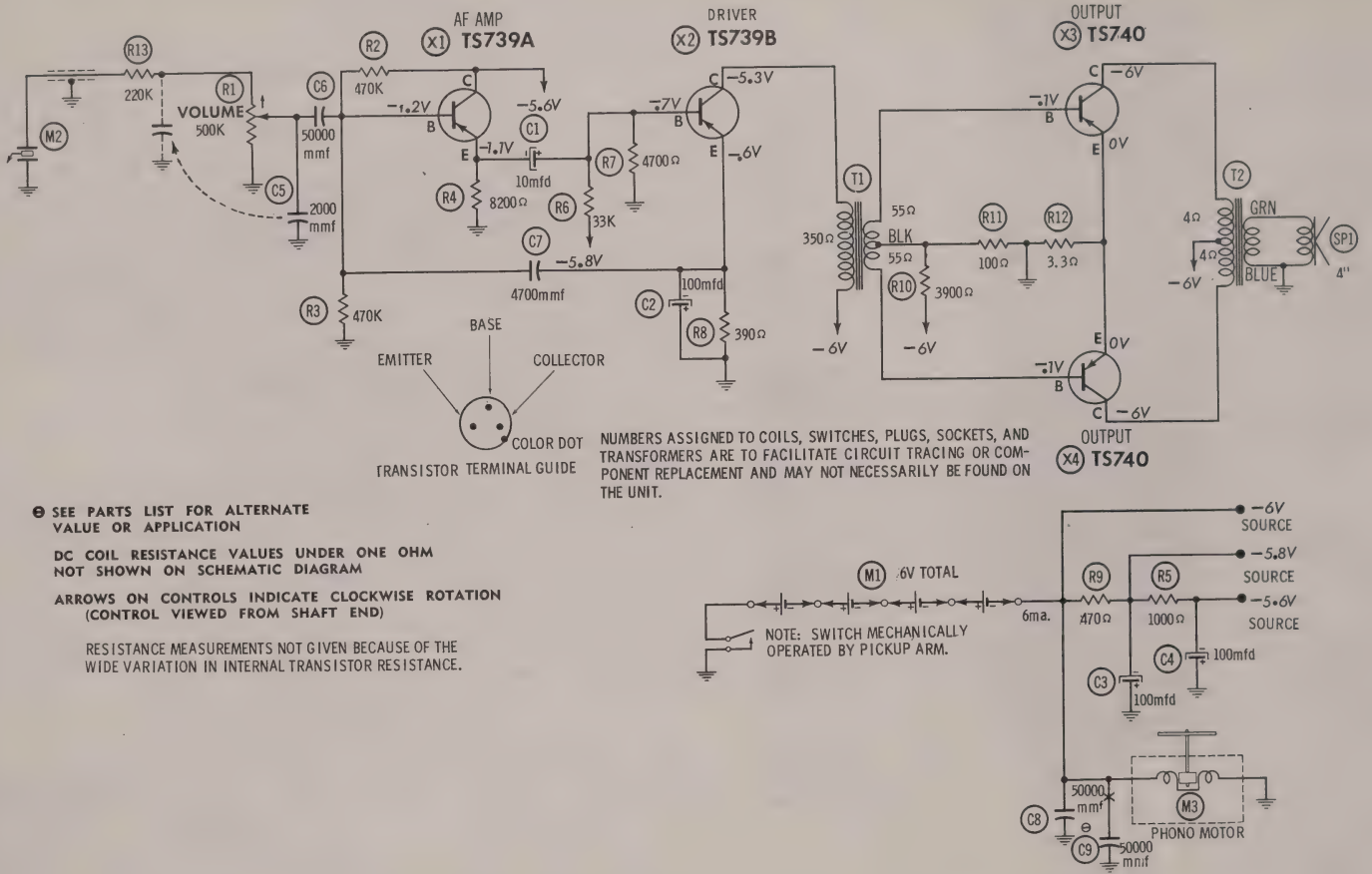
NAME	PART NO.	DESCRIPTION
Knob Cabinet Handle	K-286 CA-371 CH-123	Volume Cabinet

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

CHASSIS—BOTTOM VIEW





NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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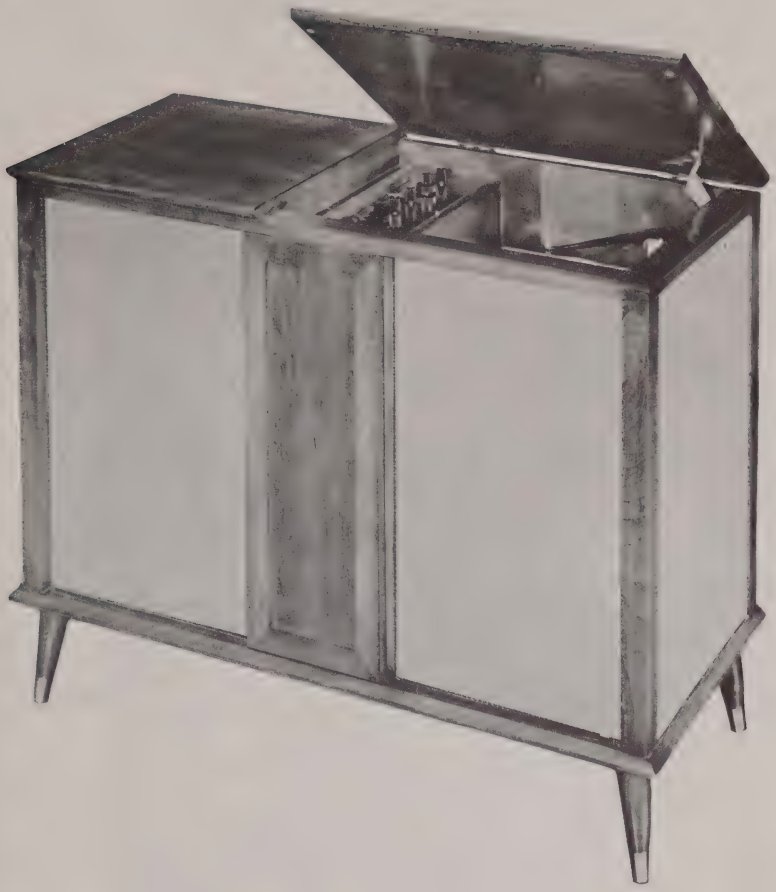
AIRLINE
MODEL GTC-1025A

PHOTOFACT® Folder

**AMC MODEL
DM1800**

AMC MODEL
DM1800



AMC MODEL
DM1800

TRADE NAME	AMC Model DM1800		
SUPPLIER	Associated Merchandising Corp., 1440 Broadway, New York 18, N. Y.		
TYPE SET	AC Operated 9 Tube FM-AM Tuner With Stereo Preamplifier, 6 Tube Stereo Amplifier, and 4 Speed Automatic Record Changer		
POWER SUPPLY	110-120 Volts AC, 60 Cycles	RATING	120 Watts, 1.2 Amp. @117 Volts AC (Less Motor)
TUNING RANGE—BROADCAST	535 — 1630KC	FREQ. MOD.	88 — 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER — SEE SIMILAR GLASER-STEERS GS-77 (REVISED) — PHOTOFACT SET 482 FOLDER 11

SET 513 FOLDER 4

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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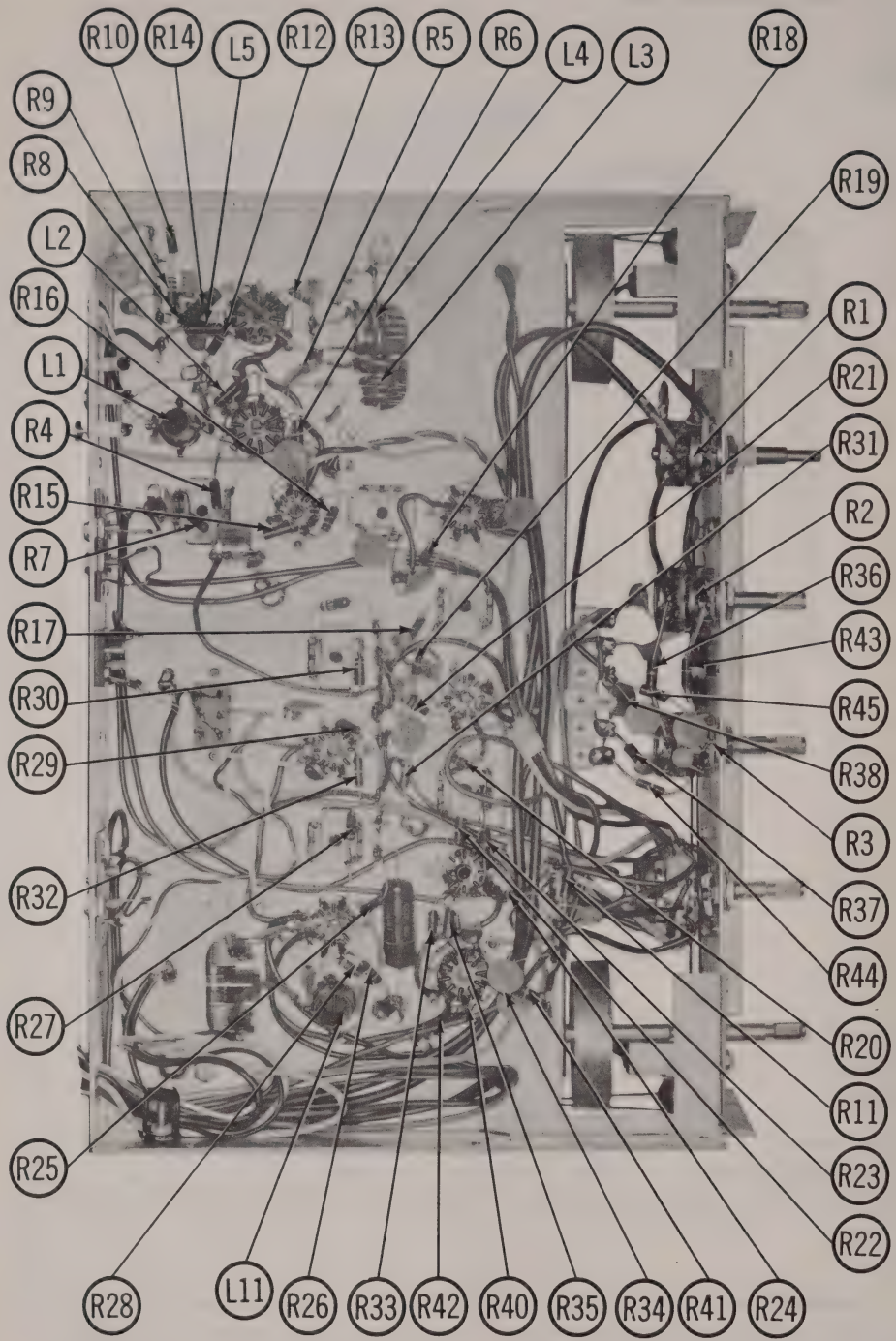
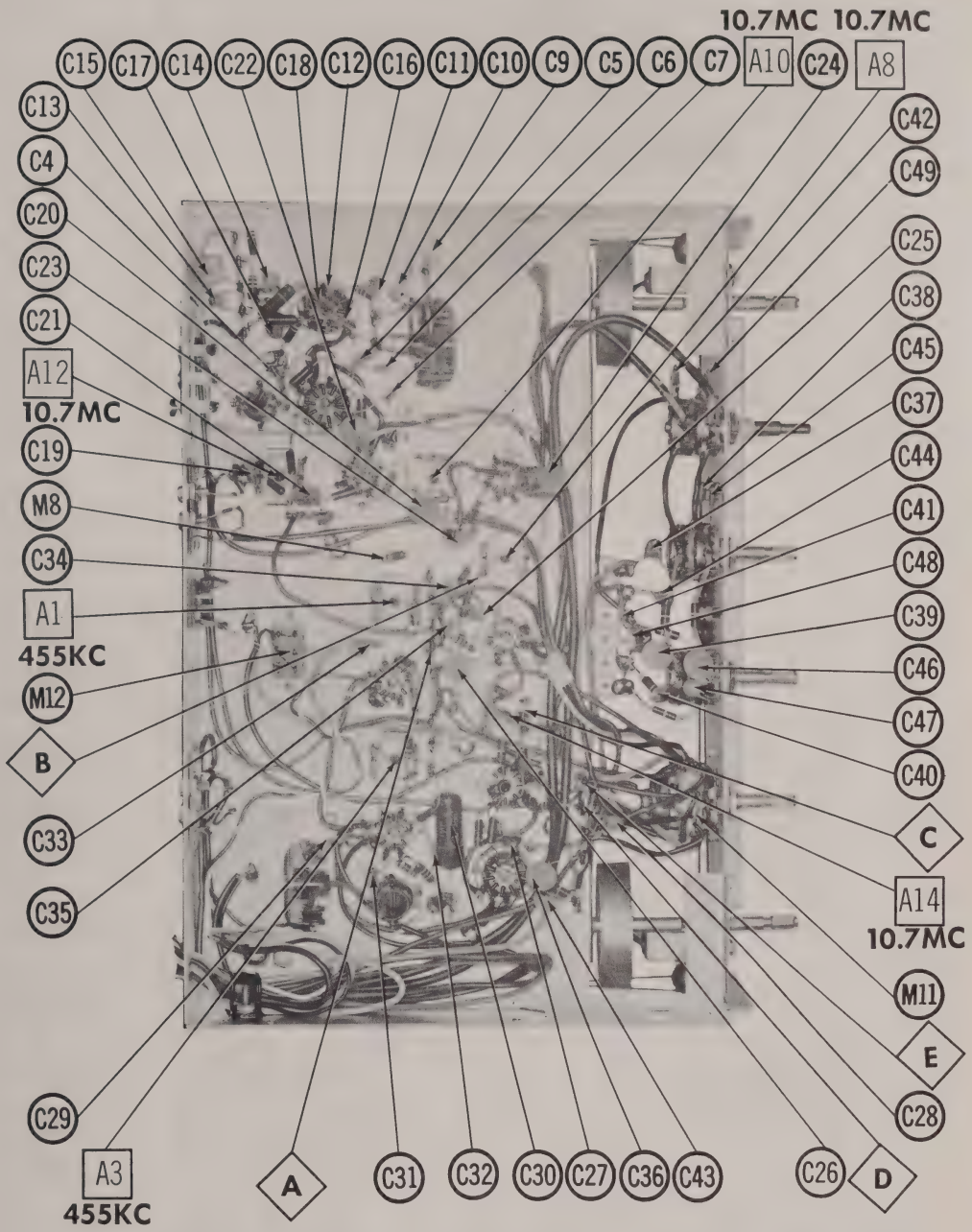
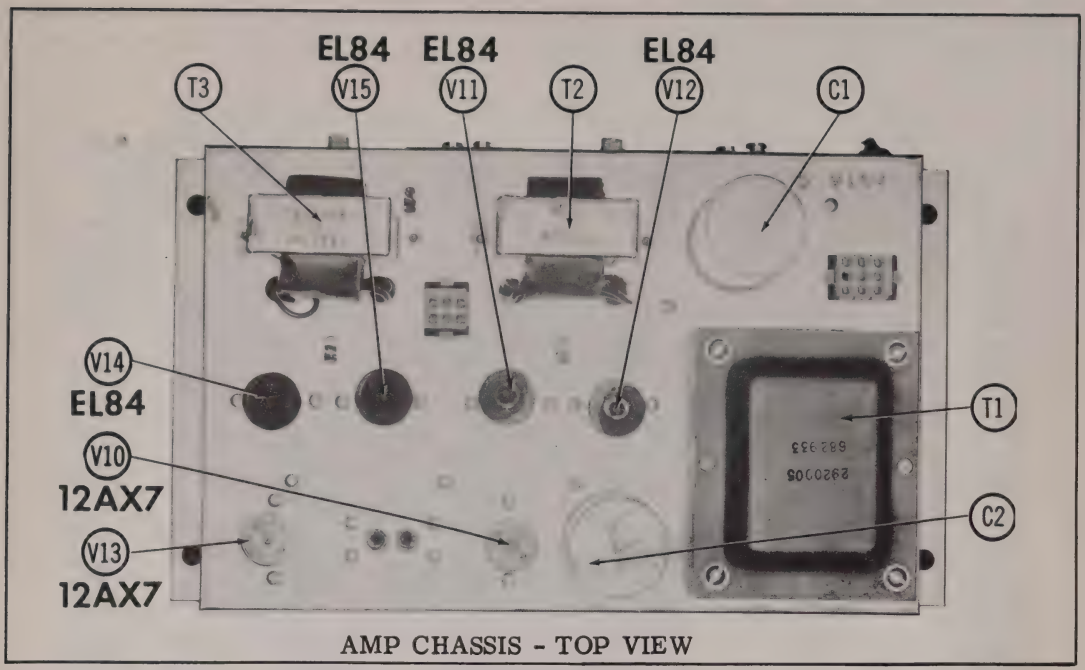
KN085



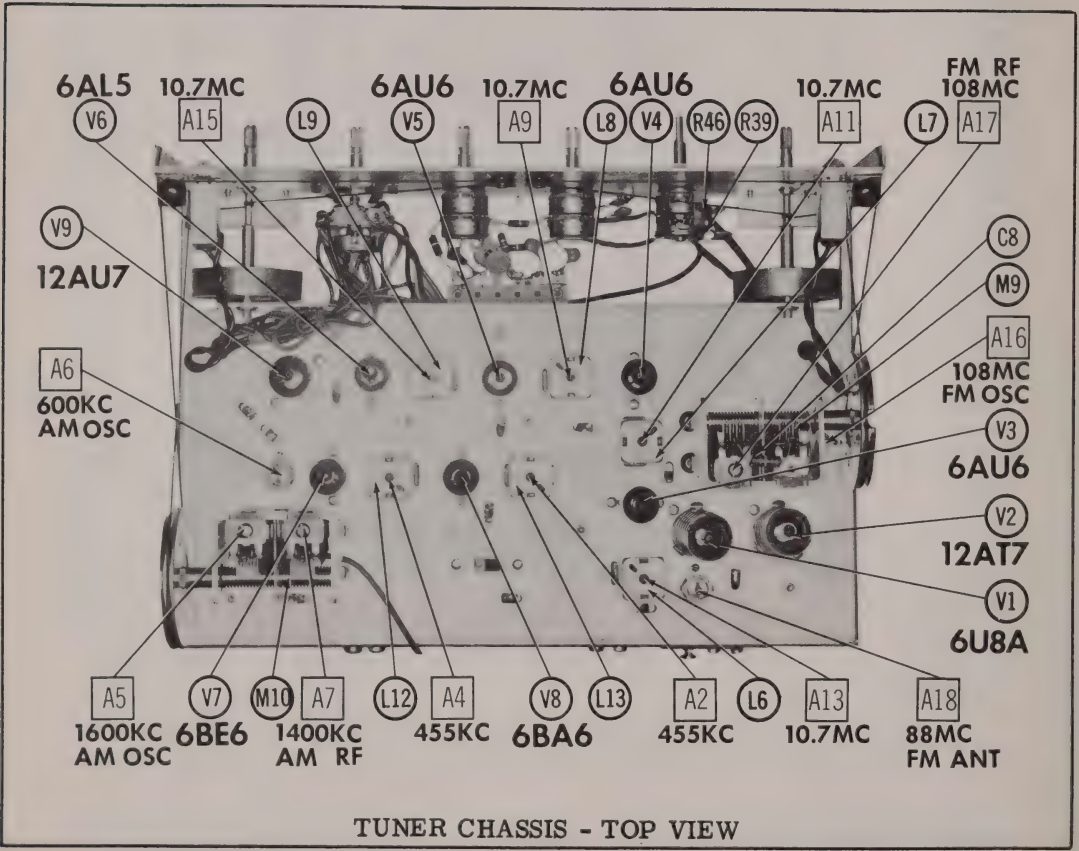
TUNER CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



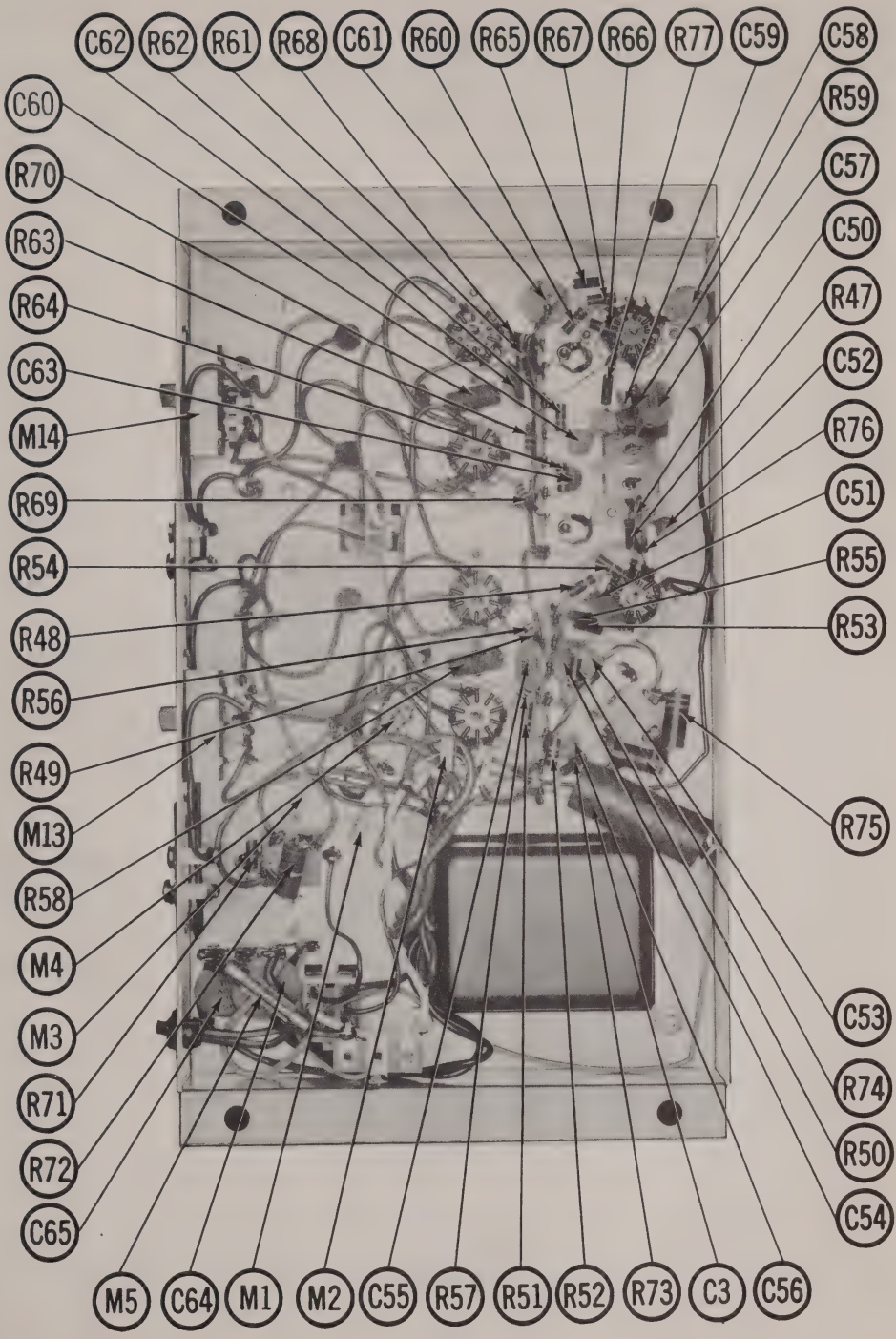
TUNER CHASSIS BOTTOM VIEW - ALIGN., CAPACITOR & MISC. IDENT.



AMP CHASSIS - TOP VIEW



TUNER CHASSIS - TOP VIEW



AMP CHASSIS - BOTTOM VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable indication.

Suggested Alignment Tools: A1, A2, A3, A4 and A8 thru A15. GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A7, A17..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520
A6, A16, A18..... GENERAL CEMENT #8721, 8722
WALSCO #2519

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (Unmod.)	(AM) Tuning gang fully open.	DC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	600KC	600KC	"	A6	"
4.	"	1400KC	1400KC Signal.	"	A7	Adjust for maximum deflection. Repeat Steps 2, 3, and 4.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .001mfd to pin 9 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (B). Common to chassis.	A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
6.	"	"	"	DC probe thru 1meg to point (C) Common to chassis.	A14	"
7.	"	"	"	DC probe to point (D). Common to chassis.	A15	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .001mfd to pin 9 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. Amp. to point (B). Low side to chassis.	A8, A9, A10, A11, A12, A13	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	Vert. Amp. thru 47K to point (C). Low side to chassis.	A14	"
7.	"	"	"	Vert. Amp. to point (D). Low side to chassis.	A15	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A14 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

Short Point E to chassis to disable AFC.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	Across FM Antenna terminals with 120Ω in high side.	108MC (Unmod.)	(FM) 108MC	DC probe to point (B). Common to chassis.	A16, A17	Adjust for maximum deflection.
9.	"	88MC	88MC	"	A18	"

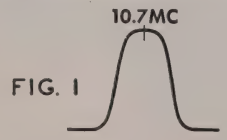


FIG. 1

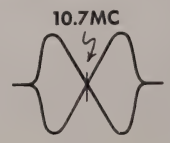
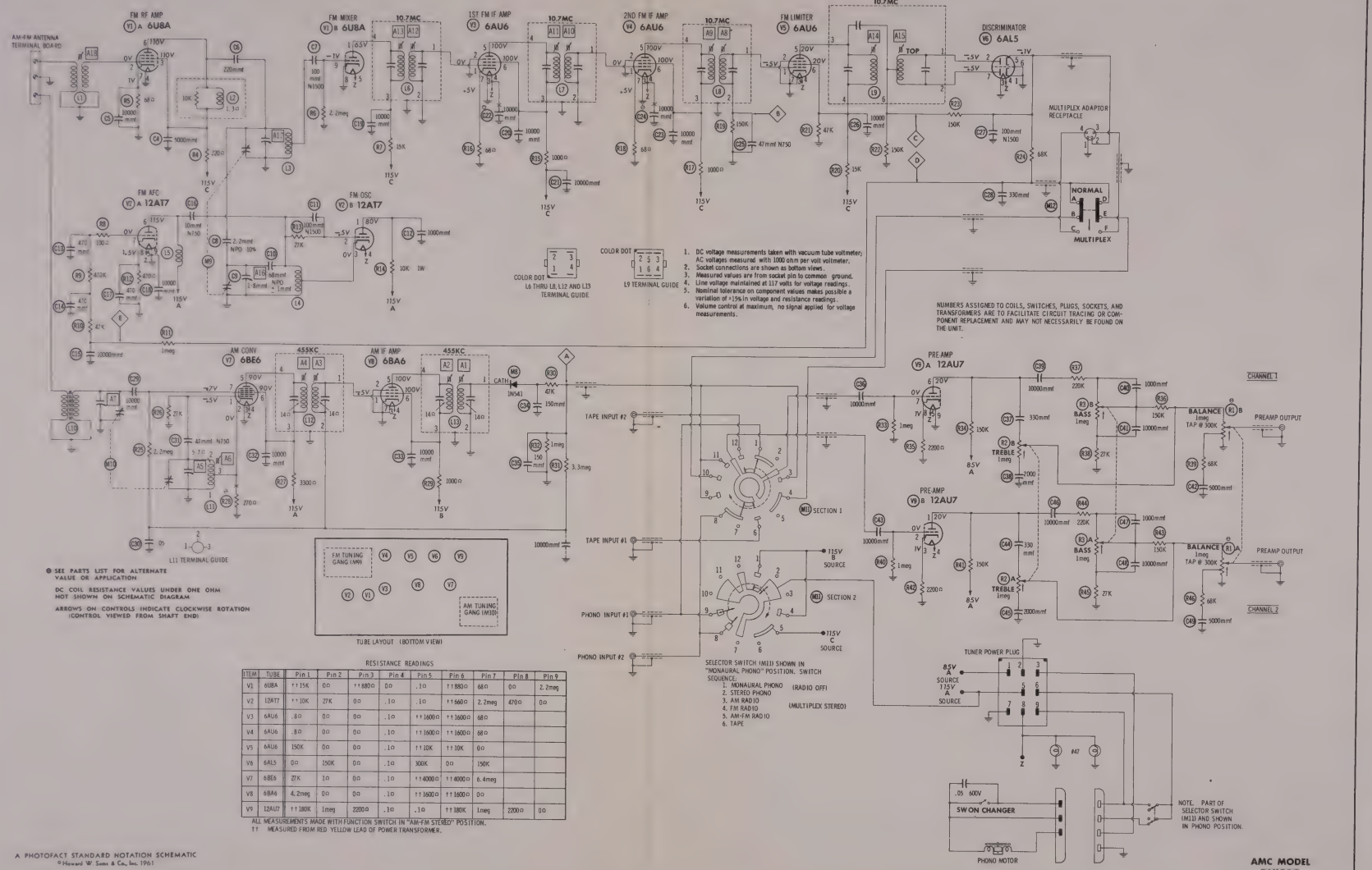


FIG. 2


FM RF AMP V1 A 6U8A
FM MIXER V1 B 6U8A
1ST FM IF AMP V3 6AU6
2ND FM IF AMP V4 6AU6
FM LIMITER V5 6AU6
DISCRIMINATOR V6 6AL5
10.7MC
AM-FM ANTENNA TERMINAL BOARD
FM AFC V7 A 12AT7
FM OSC V2 B 12AT7
AM CONV V7 6BE6
455KC
AM IF AMP V8 6BA6
PRE-AMP V9 A 12AU7
PRE-AMP V9 B 12AU7
MULTIPLEX ADAPTOR RECEPTACLE
NORMAL
MULTIPLEX
COLOR DOT
L6 THRU L8, L12 AND L13 TERMINAL GUIDE
L9 TERMINAL GUIDE
L11 TERMINAL GUIDE
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
TAPE INPUT #2
TAPE INPUT #1
PHONO INPUT #1
PHONO INPUT #2
SECTION 1
SECTION 2
SELECTOR SWITCH (M11) SHOWN IN "MONAURAL PHONO" POSITION. SWITCH SEQUENCE:
1. MONAURAL PHONO (RADIO OFF)
2. STEREO PHONO
3. AM RADIO
4. FM RADIO (MULTIPLEX STEREO)
5. AM-FM RADIO
6. TAPE
CHANNEL 1
CHANNEL 2
BALANCE
BASS
TREBLE
PREAMP OUTPUT
TUNER POWER PLUG
SW ON CHANGER
PHONO MOTOR
NOTE: PART OF SELECTOR SWITCH (M11) AND SHOWN IN PHONO POSITION.
FM TUNING GANG (MI9)
AM TUNING GANG (MI10)
TUBE LAYOUT (BOTTOM VIEW)
SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6U8A	††15K	0Ω	††880Ω	0Ω	.1Ω	††880Ω	68Ω	0Ω	2.2meg
V2	12AT7	††10K	27K	0Ω	.1Ω	.1Ω	††660Ω	2.2meg	470Ω	0Ω
V3	6AU6	.8Ω	0Ω	0Ω	.1Ω	††1600Ω	††1600Ω	68Ω		
V4	6AU6	.8Ω	0Ω	0Ω	.1Ω	††1600Ω	††1600Ω	68Ω		
V5	6AU6	150K	0Ω	0Ω	.1Ω	††10K	††10K	0Ω		
V6	6AL5	0Ω	150K	0Ω	.1Ω	300K	0Ω	150K		
V7	6BE6	27K	1Ω	0Ω	.1Ω	††4000Ω	††4000Ω	6.4meg		
V8	6BA6	4.2meg	0Ω	0Ω	.1Ω	††1600Ω	††1600Ω	0Ω		
V9	12AU7	††180K	1meg	2200Ω	.1Ω	.1Ω	††180K	1meg	2200Ω	0Ω

ALL MEASUREMENTS MADE WITH FUNCTION SWITCH IN "AM-FM STEREO" POSITION.
†† MEASURED FROM RED YELLOW LEAD OF POWER TRANSFORMER.

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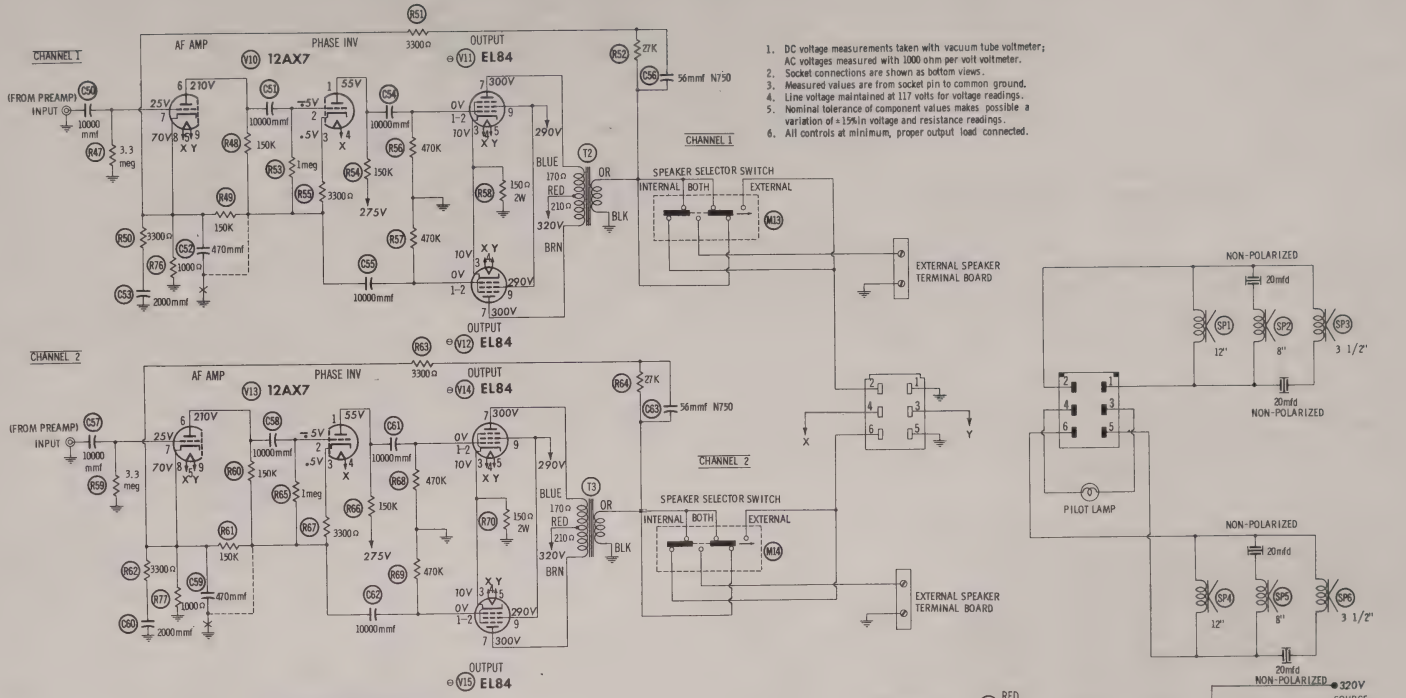
AMC MODEL DM1800



1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS (Cont.)

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V10	12AX7	†160K	▲1meg	▲3300Ω	.1Ω	.1Ω	▲150K	3.3meg	1000Ω	0Ω
V11	EL84 6BQ5	NC	470K	150Ω	.1Ω	0Ω	NC	†170Ω	NC	†1200Ω
V12	EL84 6BQ5	NC	470K	150Ω	.1Ω	0Ω	NC	†210Ω	NC	†1200Ω
V13	12AX7	■150K	3.3meg	1000Ω	.1Ω	.1Ω	†161K	■1meg	■3300Ω	0Ω
V14	EL84 6BQ5	NC	470K	150Ω	.1Ω	0Ω	NC	†170Ω	NC	†1200Ω
V15	EL84 6BQ5	NC	470K	150Ω	.1Ω	0Ω	NC	†210Ω	NC	†1200Ω

ALL MEASUREMENTS MADE WITH FUNCTION SWITCH IN "AM-FM STEREO" POSITION.
† MEASURED FROM OUTPUT OF M1.
▲ MEASURED FROM JUNCTION OF R55 AND R49.
■ MEASURED FROM JUNCTION OF R67 AND R61.
NC NO CONNECTION

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AMC MODEL DM1800

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Mixer	6U8A	V10	Channel 1 AF Amp. - Phase Inverter	12AX7
V2	FM Osc. -AFC	12AT7	V11	Channel 1 Output	EL84/6BQ5
V3	1st FM IF Amplifier	6AU6	V12	Channel 1 Output	EL84/6BQ5
V4	2nd FM IF Amplifier	6AU6	V13	Channel 2 AF Amp. - Phase Inverter	12AX7
V5	FM Limiter	6AU6	V14	Channel 2 Output	EL84/6BQ5
V6	Discriminator	6AL5	V15	Channel 2 Output	EL84/6BQ5
V7	AM Converter	6BE6			
V8	AM IF Amplifier	6BA6			
V9	Channel 1 Preamp. - Channel 2 Preamp.	12AU7			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA AMC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲30	450	0430001	AFH3-39	C0300	FP376.7	TMT-3733	TVL-3782	
B	▲30	450							
C	■30	450							
C2A	▲30	250	0430013	AFH3-39	C0300	FP376.7	TMT-3733	TVL-3782	
B	■30	250							
C	▲30	250							
C3	5	400	0430008	PRS1710	BR445	TC70	TD-4-450	TVA-1702	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C4	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	220		DI-220	DD-221	LI0T22	CCD-221	B-322	10TS-T22
C7	100 N1500	#0420005				*		
C8	2.2 NPO 10%		NPO-SI 2.2	TCZ-2R2	C10V22C	CCTO-2R2	CNO-522	10TCC-V22
C9	1-8	#0550001		829-7				
C10	68 NPO + 1mmf	#0420004						
C11	100 N1500	#0420005				*		
C12	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C13	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C14	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C15	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C16	10 N750		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C17	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C24	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	100 N1500	#0420005				*		
C28	330		BPD-00033	DD-331	LI0T33	CCD-331	B-333	10TS-T33
C29	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C30	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C31	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C32	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C33	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	150		BPD-00015	DD-151	LI0T15	CCD-151	B-315	10TS-T15
C35	150		BPD-00015	DD-151	LI0T15	CCD-151	B-315	10TS-T15
C36	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C37	330		BPD-00033	DD-331	LI0T33	CCD-331	B-333	10TS-T33

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C38	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C39	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C41	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C42	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C43	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C44	330		BPD-00033	DD-331	LI0T33	CCD-331	B-333	10TS-T33
C45	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C46	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C47	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C48	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C49	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C50	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C51	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C52	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C53	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C54	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C55	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C56	56 N750			TCN-56	C10Q56U	CCTN-560	CN7-456	10TCU-Q56
C57	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C58	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C59	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C60	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C61	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C62	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C63	56 N750			TCN-56	C10Q56U	CCTN-560	CN7-456	10TCU-Q56
C64	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10
C65	10000 1400V		DAC-27	DD16-103	HVE16S1	16DP-3-103	UAC-110	BL-S10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in some versions.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA AMC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	1meg	½	2410004 ①					Balance, Channel 2
	300K Tap							
B	1meg	½						Balance, Channel 1
	300K Tap							
R2A	1meg	½	2420010	B-70	AD47-1meg-Z		FA16A	Treble, Channel 2
B	1meg			SR-70	Not Req.		RU16A	Treble, Channel 1
C	Shaft			Not Req.	KSS-3		CS3500	
R3A	1meg	½	2420010	B-70	AD47-1meg-Z		FA16A	Bass, Channel 2
B	1meg	½		SR-70	Not Req.		RU16A	Bass, Channel 1
C	Shaft			Not Req.	KSS-3		CS3500	

① Some versions may use Part #2410005.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R4	220Ω	
R5	68Ω	
R6	2.2meg	
R7	15K	
R8	100Ω	
R9	470K	
R10	47K	
R11	1meg	
R12	470Ω	
R13	27K	
R14	10K 1W	

ITEM No.	RATING	REMARKS
R15	1000Ω	
R16	68Ω	
R17	1000Ω	
R18	68Ω	
R19	150K	
R20	15K	
R21	47K	
R22	150K	
R23	150K	
R24	68K	
R25	2.2meg	

ITEM No.	RATING	REMARKS
R26	27K	
R27	3300Ω	
R28	270Ω	Note 1
R29	1000Ω	
R30	47K	
R31	3.3meg	
R32	1meg	
R33	1meg	
R34	150K	
R35	2200Ω	
R36	150K	

PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT) (cont)

ITEM No.	RATING	REMARKS
R37	220K	
R38	27K	
R39	68K	
R40	1meg	
R41	150K	
R42	2200Ω	
R43	150K	
R44	220K	
R45	27K	
R46	68K	
R47	3, 3meg	
R48	150K	
R49	150K	
R50	3300Ω	

ITEM No.	RATING	REMARKS
R51	3300Ω	
R52	27K	
R53	1meg	
R54	150K	
R55	3300Ω	
R56	470K	
R57	470K	
R58	150Ω 2W	
R59	3, 3meg	
R60	150K	
R61	150K	
R62	3300Ω	
R63	3300Ω	
R64	27K	

ITEM No.	RATING	REMARKS
R65	1meg	
R66	150K	
R67	3300Ω	
R68	470K	
R69	470K	
R70	150Ω 2W	
R71	10K	
R72	1200Ω 2W	
R73	33K	
R74	330Ω 2W	
R75	330Ω 2W	
R76	1000Ω	
R77	1000Ω	

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		AMC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	FM Ant. Trans.	1410012				
L2	RF Choke	1400001	SW-631 *	4609 *	RTC-8519*	4.7uh ①
L3	FM RF Coil	1410015				
L4	FM Osc. Coil	1410014				
L5	RF Choke	1400002	SW-630	4606	RTC-8517	2.7uh
L6	1st FM IF Trans.	2930002	FM-254	1463	RTC-8599	
L7	2nd FM IF Trans.	2930002	FM-254	1463	RTC-8599	
L8	3rd FM IF Trans.	2930002	FM-254	1463	RTC-8599	
L9	Discriminator	2930003	FM-253	1464	RTC-8665	
L10	Loopstick	1410011	BC-418	705-A		
L11	AM Osc. Coil	1410016	BC-381	70-OSC	RTC-8647	
L12	1st AM IF Trans.	2930001	BC-352	12-C1	RTC-8632	
L13	2nd AM IF Trans.	2930001	BC-353	12-C2	RTC-8633	

* Parallel with 10K Resistor.

① Wound on 10K Resistor.

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	AMC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V ⓐ 1.2A	230VCT ⓐ .240A	6.3V ⓐ 6.7A	2920005					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	AMC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	6000Ω CT	6-8Ω	2910006	A-2901	A-3852	24S11	S-55Z	
T3	6000Ω CT	6-8Ω	2910006	A-2901	A-3852	24S11	S-55Z	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	AMC PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω		12A6AZ8	
SP2	8"	PM	4-6Ω		8A21PAZ6	
SP3	3½"	PM	10-12Ω		3A15TZ12	
SP4	12"	PM	6-8Ω		12A6AZ8	
SP5	8"	PM	4-6Ω		8A21PAZ6	
SP6	3½"	PM	10-12Ω		3A15TZ12	

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	AMC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.085A	1040003	1N1763	F6	SR500	
M2	.085A	1040003	1N1763	F6	SR500	
M3	.085A	1040003	1N1763	F6	SR500	
M4	.085A	1040003	1N1763	F6	SR500	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			AMC PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M5	GJV	5A 250V P/T	0710001		318005		GJV 5	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA							
	AMC PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M6		13TB		26S	S1-1 S3-3	53	J-43 & J-47X	8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA		REMARKS
	AMC PART No.	JENSEN PART No.	
M7		S-69X † or S-69XSD †♦ or S-69XDD ♦	† Jewel ♦ Diamond

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		AMC PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M8	1N541	1020001		1N295	1N295	AM Detector (Pigtail)

PARTS LIST AND DESCRIPTIONS (Continued)

MISCELLANEOUS

ITEM No.	PART NAME	AMC PART No.	NOTES
M9	Tuning Cap.	0510003	FM, 2 Gang
M10	Tuning Cap.	0510004	AM, 2 Gang (Ant. 17-250mmf, Osc. 14-131mmf)
M11	Switch	2820009	Function (Rotary Type, Includes Off-On)
M12	Switch	2630001	AFC Off-On (DPDT, Slide Type)
M13	Switch	2630003	Speaker Selector Channel I (3 Position DP Slide Type)
M14	Switch	2630003	Speaker Selector Channel I (3 Position DP Slide Type)
	Dial Pointer	1700028	

WIRING DATA

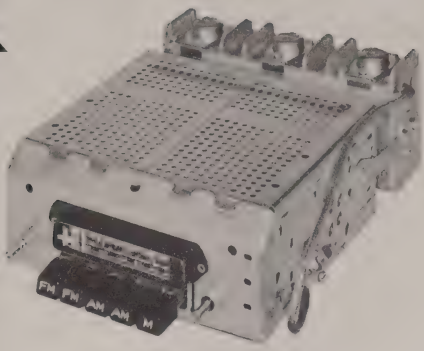
General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1765-E (12 Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

DIAL CORD STRINGING

PHOTOFACT® Folder

BLAUPUNKT MODEL FRANKFURT TRANSISTOR 3798

BLAUPUNKT MODEL
FRANKFURT TRANSISTOR 3798



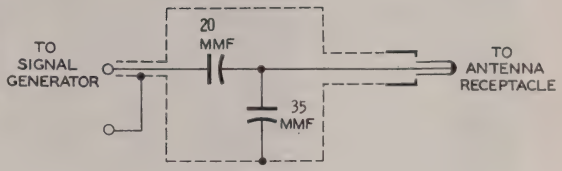


FIG. 1

TRADE NAME	Blaupunkt Model Frankfort Transistor 3798 (Serial #Q553083 and up)
IMPORTER	Robert Bosch Corp., 40-25 Crescent Street, Long Island City 1, N. Y.
TYPE SET	Battery Operated 6 Tube, 3 Transistor Universal Type Automobile FM-BC-SW Receiver
POWER SUPPLY	12 Volt Storage Battery (or) 6 Volt Storage Battery — RATING 1.8 Amp. @ 12.6 Volts DC (or) 3.75 Amp. @ 6.3 Volts DC
TUNING RANGES—BROADCAST	519 — 1620KC FREQ. MOD. 88—108MC SHORT WAVE (M) 2.1—2.7MC

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.
Set Tone control to mid position.
Suggested Alignment Tools: A8, A9, A16, A23 and A24... GENERAL CEMENT #5000, 5003, 5066, 8276, 8290, 9087, 9089
WALSCO #2512, 2525, 2528

AM ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	To antenna receptacle thru dummy (Fig. 1).	460KC (400~ Mod.)	(AM) High end stop.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	"	"	"	"	A5	Adjust for MINIMUM output.
3.	"	1100KC	(AM) 1100KC	"	A6, A7	Adjust for maximum output.
4.	"	519KC	(AM) Low end stop.	"	A8, A9	"
5.	"	2.3MC	(M) 2.3MC	"	A10, A11	"

FM ALIGNMENT

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	High side thru .01mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	6.7MC (25KC Swp)	(FM) 99MC	DC probe to point (A). Common to chassis.	A12, A13, A14, A15, A16	Adjust for maximum deflection. Repeat.
7.	High side to Antenna receptacle. Low side to chassis.	10.7MC	(FM) (99MC)	"	A17, A18, A19, A20	Adjust for maximum deflection.
8.	"	105MC	(FM) 105MC	"	A21, A22	"
9.	"	89MC	(FM) 89MC	"	A23, A24	"

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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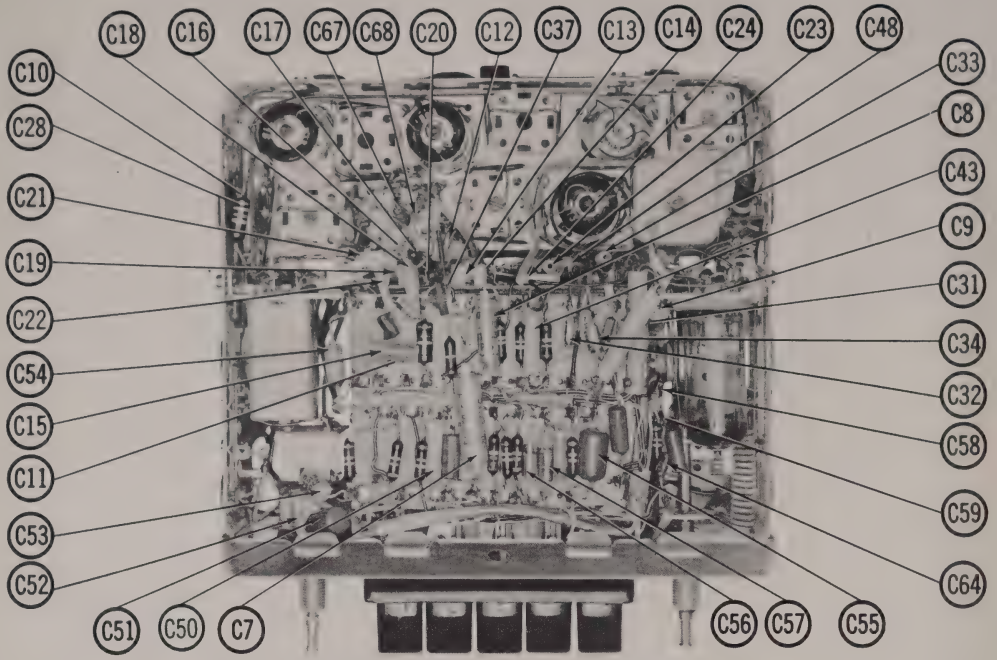
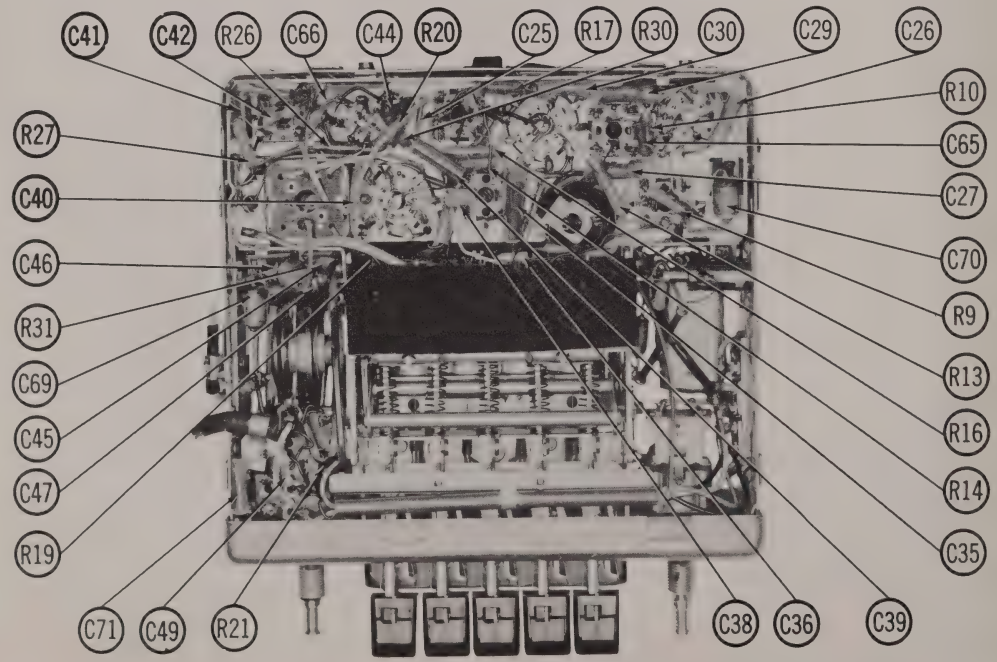
KL047

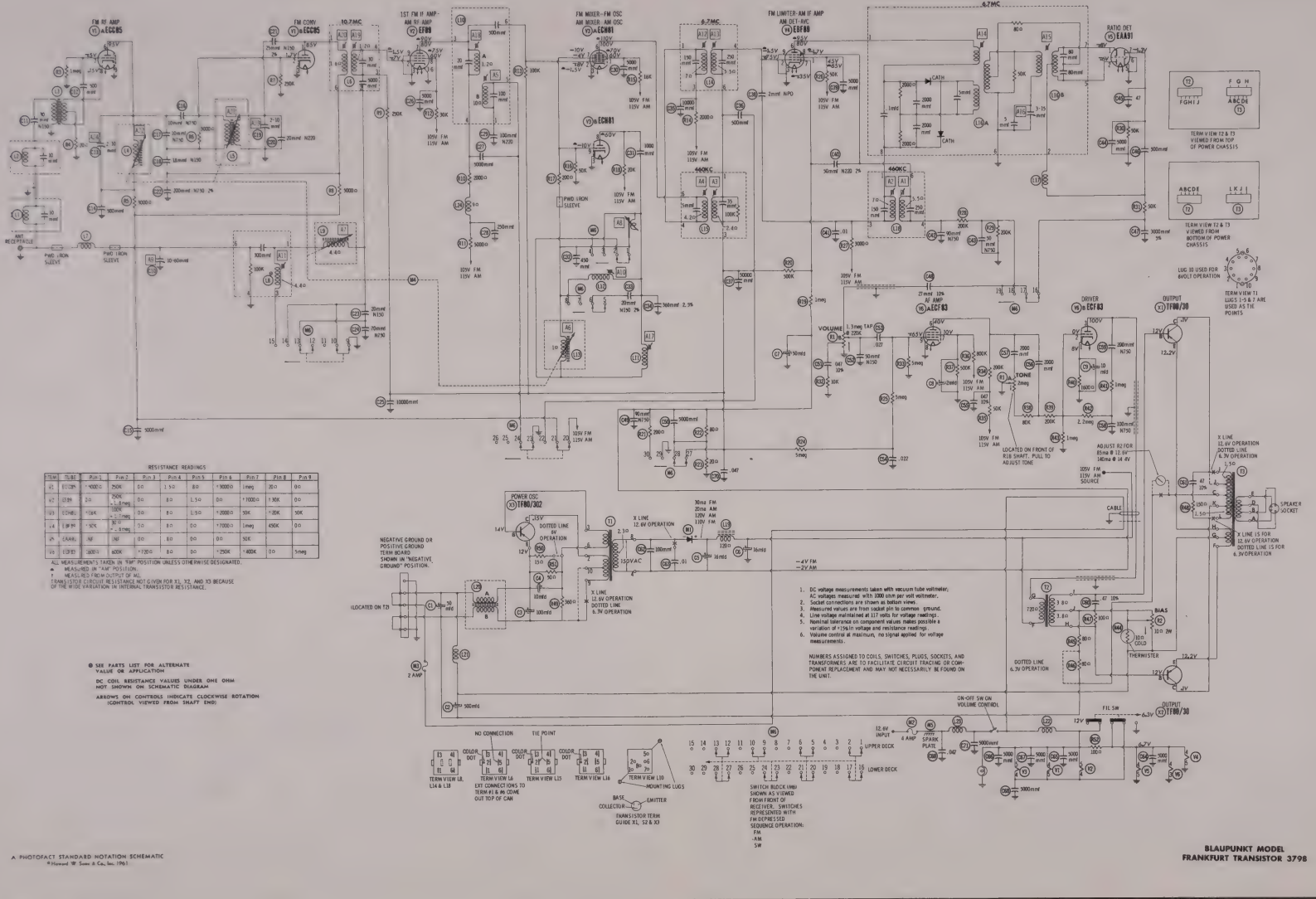
SET 513 FOLDER 5



CHASSIS TOP VIEW—CAPACITOR IDENTIFICATION



CHASSIS TOP VIEW—CAPACITOR AND RESISTOR IDENTIFICATION



RESISTANCE READINGS

TUBE	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	*1000Ω	250K	0.0	1.5Ω	8.0	*1000Ω	1meg	20Ω	0.0
V2	EF89	2.0	250K - 1.5meg	0.0	8.0	1.5Ω	0.0	†7000Ω	†30K	0.0
V3	ECH81	*15K	100K - 2.5meg	0.0	8.0	1.5Ω	*2000Ω	50K	*20K	30K
V4	EBF89	*15K	80 Ω - 2.5meg	0.0	8.0	0.0	†7000Ω	1meg	450K	0.0
V5	EAA91	INF	INF	0.0	8.0	0.0	0.0	50K		
V6	ECF83	600Ω	600K	*720Ω	8.0	3.0	*250K	*400K	0.0	1meg

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
* MEASURED IN "AM" POSITION.
† MEASURED FROM OUTPUT OF M1.
TRANSISTOR CIRCUIT RESISTANCE NOT GIVEN FOR X1, X2, AND X3 BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

⊕ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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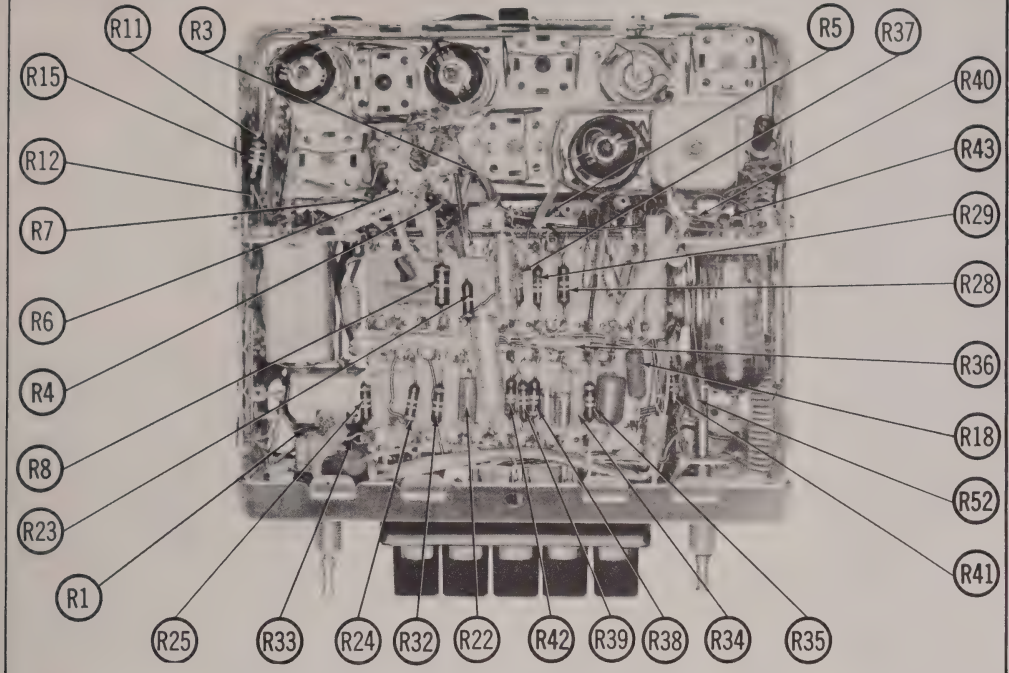
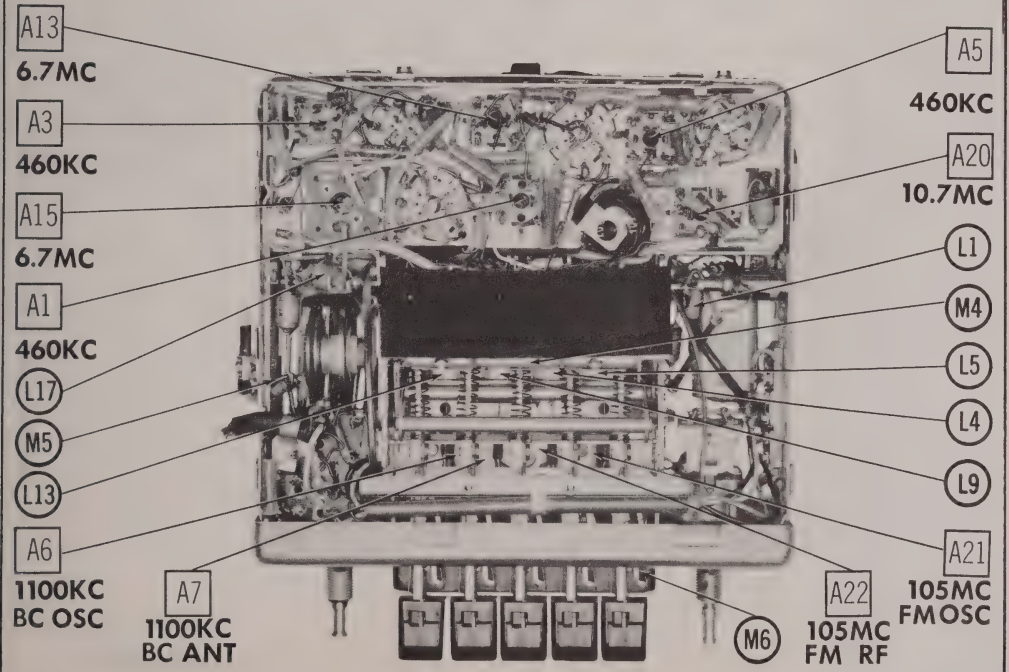
BLAUPUNKT MODEL
FRANKFURT TRANSISTOR 3798



CHASSIS TOP VIEW—RESISTOR IDENTIFICATION



CHASSIS-BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (GENERAL ELECTRIC • RAYTHEON • SYLVANIA)
V1	FM RF Amp. -FM Conv.	ECC85
V2	1st FM IF Amp. - AM RF Amp.	EF89
V3	FM Mixer-FM Osc. - AM Mixer-AM Osc.	ECH81
V4	FM Limiter-AM IF Amp. - AM Det. -AVC.	EBF89
V5	Ratio Detector	EAA91
V6	AF Amplifier - Driver	ECF83

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
X1	TF80/30	Output				PNP
X2	TF80/30	Output				PNP
X3	TF80/30Z	Power Oscillator				PNP

ELECTROLYTIC CAPACITORS

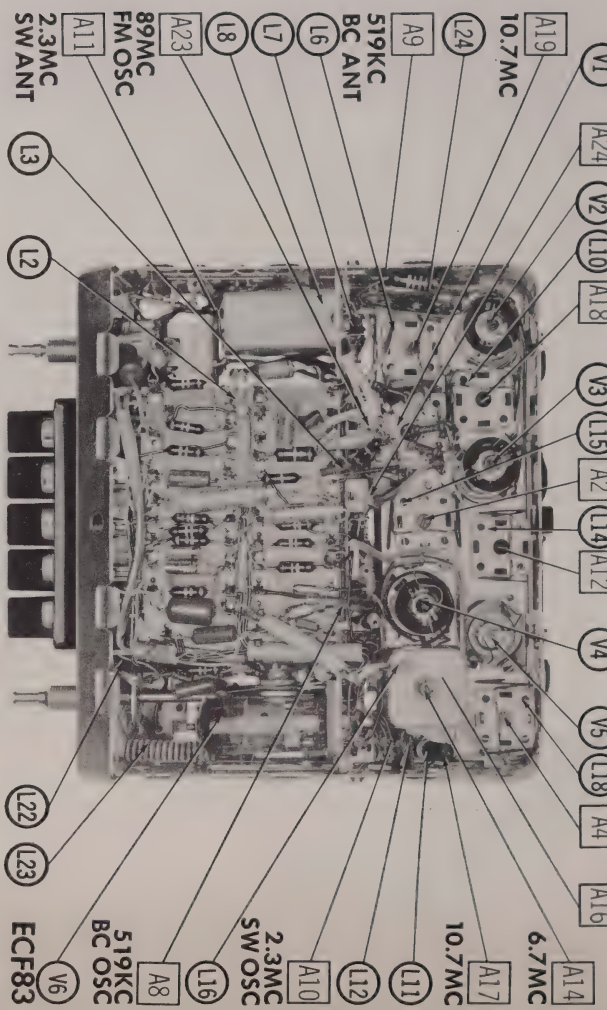
ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: BLAUPUNKT PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	50	15		XPP-15050	BR505	TT15X50	ML50-15	TE-1160	
C2	500	15		PRS2020				TVA-1315	
C3	100	15		PRS1200	BBR100-15	TC2501	TD-100-15	TE-1162	
C4	10	6		XPP-6010	NLW10-6	TT6X10	ML10-6	TE-1087	
C5	16	200						TVA-1507	
C6	16	200						TVA-1507	
C7	50	15		XPP-15050	BR505	TT15X50	ML50-15	TE-1160	
C8	2	100		XPP-3100		TT150X2		TE-1401	
C9	10	12		XPP-12010	NLW10-15	TT12X10	ML10-15	TE-1128	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C10	10-60					404		
C11	30 N150					*		10TCP-Q33
C12	500		BPD-0005	DD-501	BYA10T5	CCD-501	B-350	10TS-T50
C13	2-10					420		
C14	500		BPD-0005	DD-501	BYA10T5	CCD-501	B-350	10TS-T50
C15	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C16	10 N750		N750-DI 10	DTN-10	C10Q10U	CCTN-100	CN7-410	10TCU-Q10
C17	10 N150					*		10TCP-Q10
C18	18 N150					*		10TCP-Q18
C19	2-10					420		
C20	20 N220					*		10TCR-Q22
C21	25 N150 2%					*		
C22	200 N750 2%					*		
C23	20 N150					*		10TCP-Q22
C24	70 N750		N750-SI 68	TCN-68	C10Q68U	CCTN-680	CN7-468	10TCU-Q68
C25	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C27	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C28	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C29	100 N220					*		10TCR-T10
C30	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C31	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C32	450		SI 470	D6-471	BYA10T47	CCD-471	B-347	10TS-T47
C33	20 N150 2%					*		
C34	360 2.5%					VCM-20-361G		
C35	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	500		BPD-0005	D6-501	BYA10T5	CCD-502	B-350	10TS-T50

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C37	50000			DD-503	DPMS6S5	6DP-3-503	GP150	5HK-S50
C38	2 NPO		NPO-DI 2, 2	DTZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C39	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C40	50 N220 2%							
C41	.01 500V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S2
C42	90 N750		N750-SI 91	TCN-91	C10Q91U			
C43	50 N750		N750-SI 50	TCN-50	C10Q5U	CCTN-470	CN7-447	10TCU-Q47
C44	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C45	.47 125V		P288N-47		CUB2P47		GEM-2047	
C46	500		BPD-0005	D6-501	BYA10T5	CCD-501	B-350	10TS-T50
C47	3000 5%				1R5D3	CM-20B-302J	MCE461	MS-23
C48	27 10%				L10Q27			
C49	90 N750		N750-SI 91	TCN-91	C10Q 91U			
C50	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C51	.047 400V 10%		V84C4S47-10%		PM4S47	4DP-3-473		4TM-S47
C52	50 N150					*		10TCR-Q47
C53	.027 125V				DPMS6S27			
C54	.022 125V		P288N-022	DD-203	DPMS4S22	4DP-2-223	GEM-4122	2TM-S22
C55	.047 400V 10%		V84C4S47-10%		PM4S47	4DP-3-473		4TM-S47
C56	2000		SI 2000	D6-202	BYA10D2	CCD-202	B-220	5HK-D20
C57	2000		SI 2000	D6-202	BYA10D2	CCD-202	B-220	5HK-D20
C58	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C59	200 N750		N750-SI 200	TCN-200	C10T2U	CCTN-201	CN7-320	10TCU-T20
C60	.47 125 10%		V84C2P47-10%		PM2P47			
C61	.47 125 10%		V84C2P47-10%		PM2P47			
C62	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C63	.01 400V		P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-01
C64	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C65	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C66	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C67	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C68	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C69	.047 125V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C70	.047 125V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C71	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	BLAUPUNKT PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	2meg							Tone
B	1.3meg 220K Tap							Volume
C	Switch							Push-Push Off-On
R2	10Ω	2(WW)						Bias

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	1meg	
R4	20Ω	
R5	3000Ω	
R6	3000Ω	
R7	250K	
R8	50000Ω	
R9	250K	
R10	2000Ω	
R11	5000Ω	
R12	30K	

ITEM No.	RATING	REMARKS
R13	100K	
R14	2000Ω	
R15	16K	
R16	50K	
R17	200Ω	
R18	20K	
R19	1meg	
R20	500K	
R21	200Ω	
R22	80Ω	

ITEM No.	RATING	REMARKS
R23	20Ω	
R24	5meg	
R25	5meg	
R26	50K	
R27	3000Ω	
R28	200K	
R29	200K	
R30	50K	
R31	50K	
R32	10K	

RESISTORS (IRC or EQUIVALENT) (cont)

ITEM No.	RATING	REMARKS
R33	5meg	
R34	200K	
R35	50K	
R36	800K	
R37	500K	
R38	80K	
R39	200K	

ITEM No.	RATING	REMARKS
R40	1600Ω	
R41	1meg	
R42	2.2meg	
R43	1meg	
R44	10Ω Cold	
R45	80Ω	
R46	80Ω	

ITEM No.	RATING	REMARKS
R47	100Ω	
R48	150Ω	
R49	360Ω	
R50	15Ω	
R51	50Ω	
R52	100Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		BLAUPUNKT PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	RF Choke	①				
L2	RF Choke	①				
L3	FM Ant. Trans.					
L4	FM RF Coil					
L5	1st FM Osc. Coil					
L6	1st 10.7MC FM IF Trans.					
L7	RF Choke					
L8	SW Ant. Coil	②				
L9	BC Ant. Coil					
L10A	2nd 10.7MC FM IF Trans.					
B	460KC IF Trap					
L11	2nd FM Osc. Coil					
L12	SW Osc. Coil					
L13	BC Osc. Coil					
L14	1st 6.7MC FM IF Trans.					
L15	1st AM IF Trans.					
L16A	2nd 6.7MC FM IF Trans.					
B	Ratio Det.					
L17	RF Choke					
L18	2nd AM IF Trans.					
L19	RF Choke					
L20A	Hash Choke					
B	Hash Choke					
L21	RF Choke					
L22	Fil. Choke					
L23	"A" Lead Hash Choke					
L24	RF Choke					

① Wound on 10mmf Cap.
② Includes 100K Resistor and 300mmf capacitor.

TRANSFORMER (POWER)

ITEM No.	RATING		REPLACEMENT DATA					NOTES
	INPUT	OUTPUT	BLAUPUNKT PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	12.6V@ 1.8A Tap @ 6.3V @ 3.75A	150V @ .030A						

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	BLAUPUNKT PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	8.5	1						

PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	BLAUPUNKT PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T3		4-6Ω						

POWER RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA				NOTES
	CURRENT (Measured)	BLAUPUNKT PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.030A	*				* Selenium Type

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			BLAUPUNKT PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M2 M3		4A 2A					6MA4 6MA2	

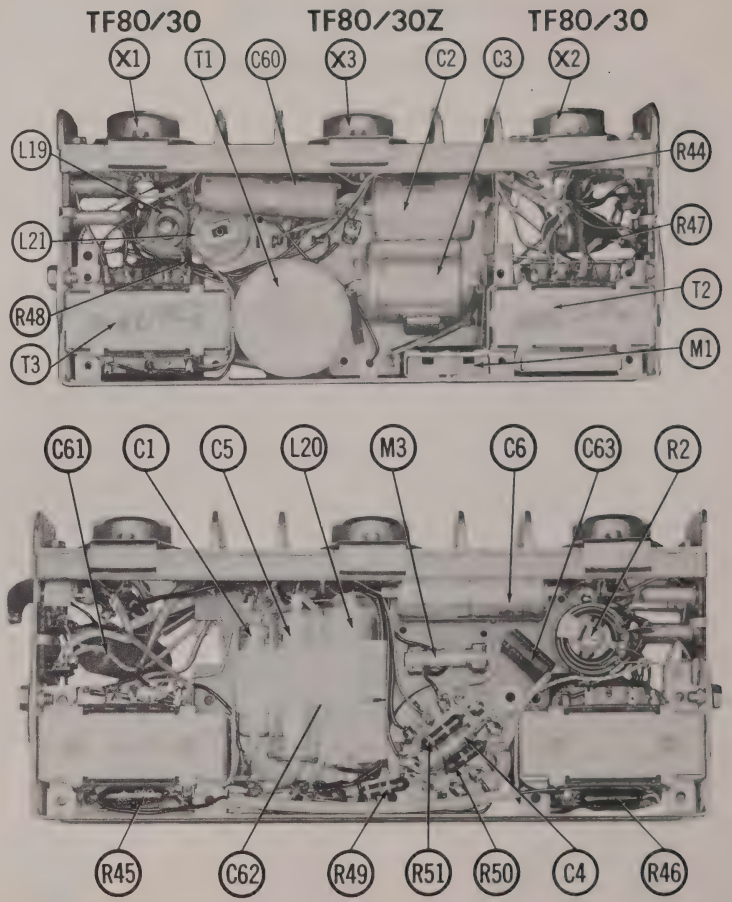
MISCELLANEOUS

ITEM No.	PART NAME	BLAUPUNKT PART No.	NOTES
M4	Tuner		FM-AM
M5	Spark Plate		
M6	Switch		FM-AM-SW (Pushbutton Type)

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors
Shielded Hook-up Wire .....Use BELDEN No. 8885
Bonding Strap .....Use BELDEN No. 8661

POWER CHASSIS



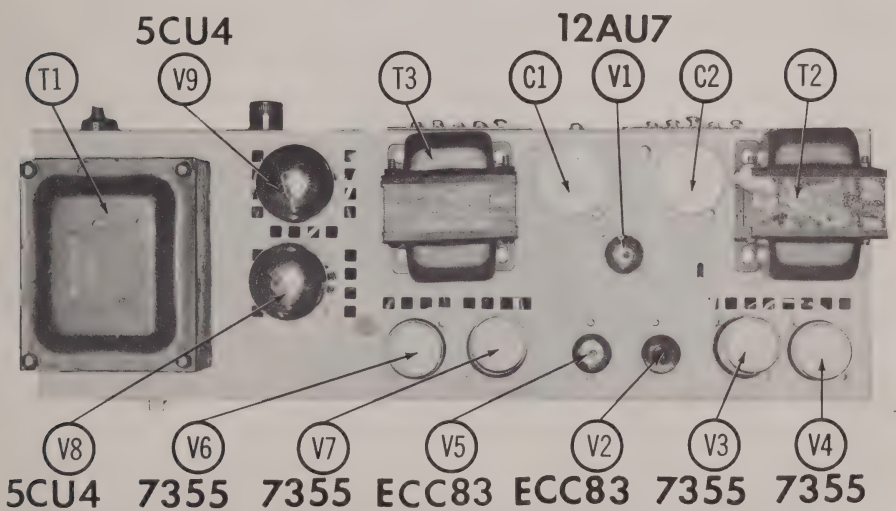
PHOTOFACT® Folder

**BOGEN
MODEL DS225**

BOGEN
MODEL DS225

BOGEN
MODEL DS225

TRADE NAME	Bogen Model DS225
MANUFACTURER	Bogen-Presto Co., A Div. of The Siegler Corp., P. O. Box 500, Paramus, N. J.
TYPE SET	AC Operated 9 Tube Stereo Amplifier
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 160 Watts, 1.5 Amp. @117 Volts AC



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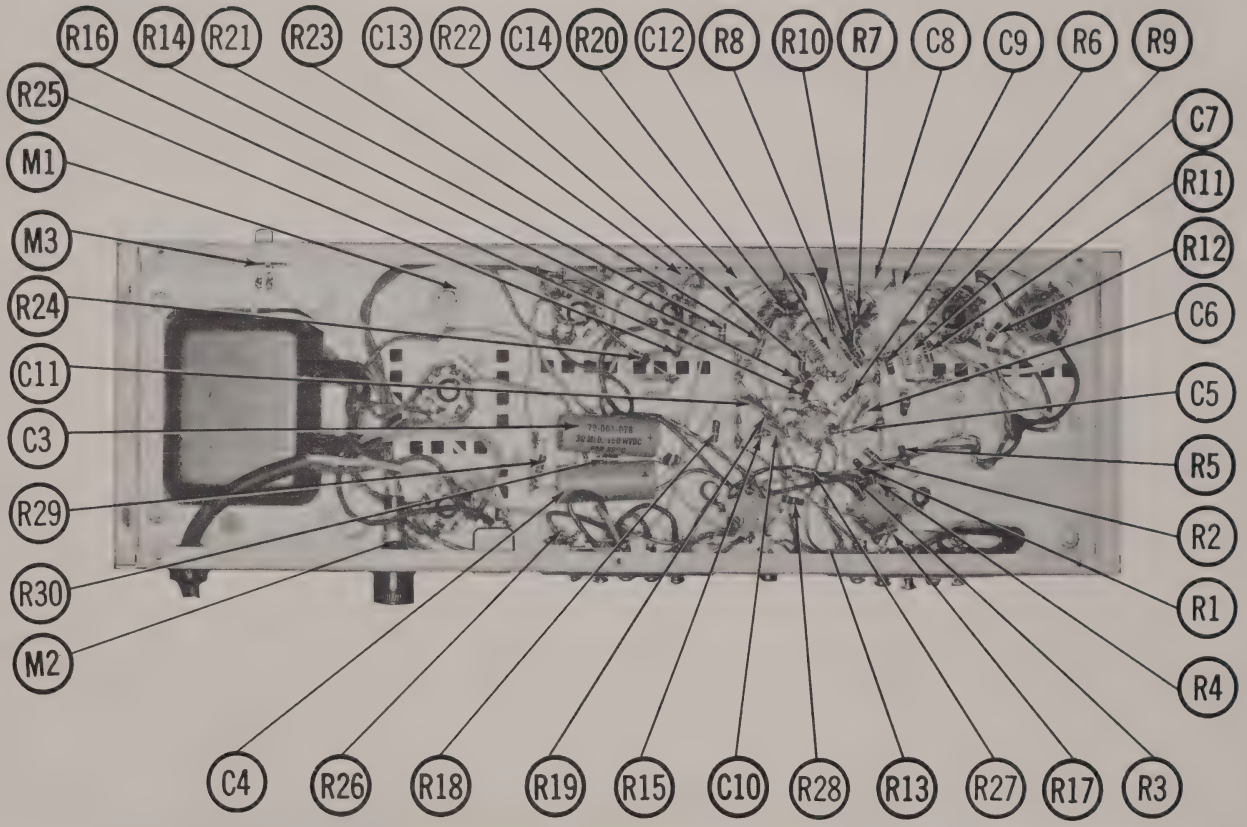


CHASSIS BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

TUBES

◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆

ITEM No.	USE	TYPE
V1	Channel 1 AF Amp. - Channel 2 AF Amp.	12AU7
V2	Channel 1 AF Amp. - Phase Inverter	ECC83/12AX7
V3	Channel 1 Output	7355
V4	Channel 1 Output	7355
V5	Channel 2 AF Amp. - Phase Inverter	ECC83/12AX7
V6	Channel 2 Output	7355
V7	Channel 2 Output	7355
V8	Rectifier	5CU4
V9	Rectifier	5CU4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA BOGEN PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	■20	500	79-010-021	AFH3-52	C0390	FP399.5	TMT-3859	TVL-3956	
B	▲20	500							
C	▲30	500							
C2A	▲20	450	79-010-001	AFH4-19-10	D0170	FP474.5	TMQ-4752	TVL-4832	
B	■20	450							
C	▲10	350							
D	10	350							
C3	30	150	79-001-078	PRS1460	BR3015	TC47	TD-30-150	TVA-1412	
C4	30	150	79-001-078	PRS1460	BR3015	TC47	TD-30-150	TVA-1412	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	820 10%		DI-820	DD-821	BYA10T82	CCD-821	GP382	10TS-T82
C6	2200 10%		DI-2200	DD-222	BYA10D2	CCD-222	GP222	10TS-D22
C7	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C8	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C9	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C10	820 10%		DI-820	DD-821	BYA10T82	CCD-821	GP382	10TS-T82
C11	2200 10%		DI-2200	DD-222	BYA10D22	CCD-222	GP222	10TS-D22
C12	.1 200V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P10
C13	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10
C14	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R1	100K	
R2	82K	
R3	1200Ω	
R4	15K	
R5	2200Ω	
R6	6.8meg	
R7	1meg	
R8	82K	
R9	47K	
R10	82K	
R11	100K	
R12	100K	
R13	18K	
R14	100K	
R15	82K	
R16	1200Ω	
R17	15K	
R18	2200Ω	
R19	6.8meg	
R20	1meg	
R21	82K	
R22	47K	
R23	82K	
R24	100K	
R25	100K	
R26	18K	
R27	5600Ω	
R28	5600Ω	
R29	4700Ω	
R30	2400Ω	

TRANSFORMER (POWER)

ITEM No.	RATING PRI.	RATING SEC. 1	RATING SEC. 2	REPLACEMENT DATA BOGEN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	117V Ⓐ 1.5A	280VCT Ⓐ .180A DC	400VCT Ⓐ .200A DC. Tap Ⓐ 40V Ⓐ .005A DC	83-624-000					
	SEC. 3	SEC. 4	SEC. 5						
	5V Ⓐ 1.9A	5V Ⓐ 1.9A	6.3VCT Ⓐ 4.3A						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI. 1	IMPEDANCE SEC.	REPLACEMENT DATA BOGEN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	5700Ω CT	32Ω Tap Ⓐ 16Ω, 8Ω, 4Ω	83-308-000					
	PRI. 2							
	TURNS RATIO							
	.6	: 1						

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE PRI. 1	IMPEDANCE SEC.	REPLACEMENT DATA BOGEN PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T3	5000Ω CT	32Ω Tap Ⓐ 16Ω, 8Ω, 4Ω	83-308-010					
	PRI. 2							
	TURNS RATIO							
	.6	: 1						

RECTIFIERS

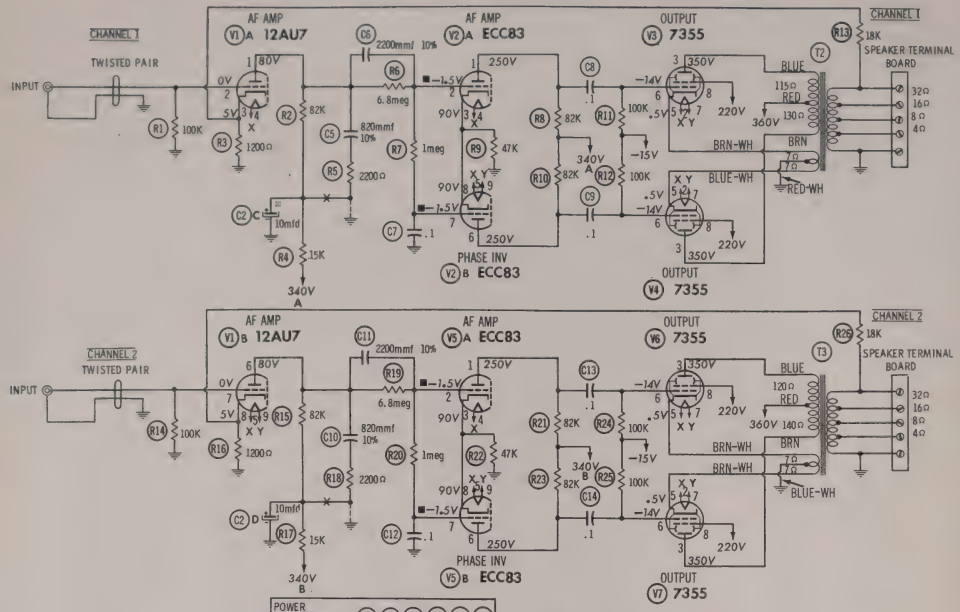
ITEM No.	RATING CURRENT (Measured)	REPLACEMENT DATA BOGEN PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	NOTES
M1	.005A	86-0016-01 *			Model 10 *		* Selenium Type

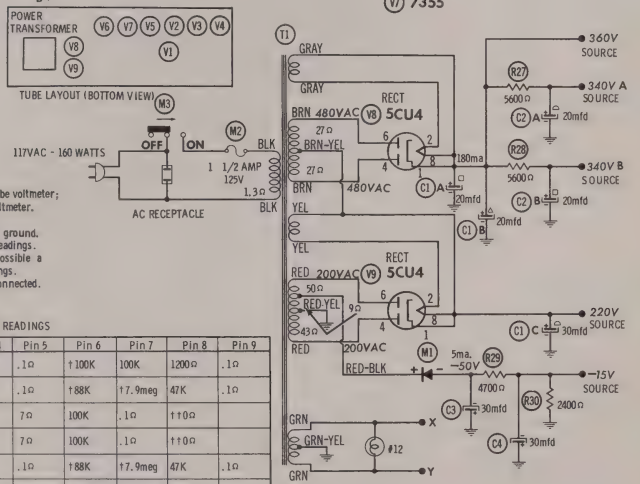
FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA BOGEN PART No. FUSE	BOGEN PART No. HOLDER	LITTELFUSE PART No. FUSE	LITTELFUSE PART No. HOLDER	BUSS PART No. FUSE	BUSS PART No. HOLDER
M2	3AG	1½A 125V S/B			31301.5 (3AG 1½A 125V) S/B	342001	MDL 1½	HKP

MISCELLANEOUS

ITEM No.	PART NAME	BOGEN PART No.	NOTES
M3	Switch	81-003-004	Power Off-On (SPDT Slide Type)





1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance of component values makes possible a variation of ±15% in voltage and resistance readings.
6. All controls at minimum, proper output load connected.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AU7	†100K	100K	1200Ω	.1Ω	.1Ω	†100K	100K	1200Ω	.1Ω
V2	ECC83 12AX7	†88K	†6.9meg	47K	.1Ω	.1Ω	†88K	†7.9meg	47K	.1Ω
V3	7355	NC	.1Ω	†115Ω	NC	7Ω	100K	.1Ω	††0Ω	
V4	7355	NC	.1Ω	†130Ω	NC	7Ω	100K	.1Ω	††0Ω	
V5	ECC83 12AX7	†88K	†6.9meg	47K	.1Ω	.1Ω	†88K	†7.9meg	47K	.1Ω
V6	7355	NC	.1Ω	†120Ω	NC	7Ω	100K	.1Ω	††0Ω	
V7	7355	NC	.1Ω	†140Ω	NC	7Ω	100K	.1Ω	††0Ω	
V8	5CU4	¶	¶	NC	27Ω	NC	27Ω	NC	¶	
V9	5CU4	¶	¶	NC	43Ω	NC	59Ω	NC	¶	

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 1 OF V8. ■ MEASURED FROM CATHODES.
†† MEASURED FROM PIN 1 OF V9. NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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BOGEN
MODEL DS225

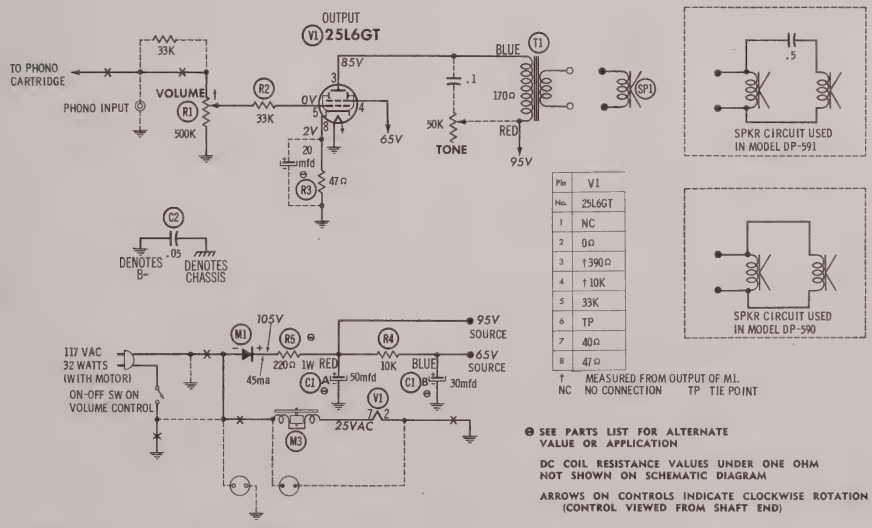
PHOTOFACT® Folder

DECCA MODELS DP-477, DP-479, DP-560, DP-570, DP-580, DP-581, DP-582, DP-585, DP-590, DP-591, DP-908, DP-909, DP-910, DPS-7, DPS-8, DPS-10, DPS-12

DECCA MODELS DP-477, DP-479, DP-560, DP-570, DP-580, DP-581, DP-582, DP-585, DP-590, DP-591, DP-908, DP-909, DP-910, DPS-7, DPS-8, DPS-10, DPS-12

DECCA MODELS DP-477, DP-479, DP-560, DP-570, DP-580, DP-581, DP-582, DP-585, DP-590, DP-591, DP-908, DP-909, DP-910, DPS-7, DPS-8, DPS-10, DPS-12

TRADE NAME	Decca Models DP-477, DP-479, DP-560, DP-570, DP-580, DP-581, DP-582, DP-585, DP-590, DP-591, DP-908, DP-909, DP-910, DPS-7, DPS-8, DPS-10, DPS-12
MANUFACTURER	Decca Distributing Corp., 445 Park Avenue, New York 22, N. Y.
TYPE SET	AC Operated One Tube Phono Amplifier With Manual Record Player
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles RATING 32 Watts, .37 Amp. @117 Volts AC



Pin No.	V1
1	25L6GT
2	NC
3	0Ω
4	†390Ω
5	†10K
6	33K
7	TP
8	40Ω

† MEASURED FROM OUTPUT OF M1.
NC NO CONNECTION TP TIE POINT

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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SET 513 FOLDER 7

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC •			RAYTHEON • SYLVANIA •		
ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	Output	25L6GT			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	DECCA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	50	150	CE-132	PRS2200	BBRD5315	TCD497	TDLD-8	TVA-2450	Note 1
B	30	150							

Note 1. In some models C1A may be 40mfd or 60mfd and a cathode bypass section may be added.

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	DECCA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	500K	½	VC-157	B-60-S	A47-500K-Z	QI3-133	U48	Volume
B	Shaft			Not Req.	KSS-3	Not Req.	Not Req.	
C	Switch			Not Req.	SWE-12	76-1	US-26	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	33K	
R3	47Ω	Note 1

ITEM No.	RATING	REMARKS
R4	10K	
R5	220Ω 1W	Note 2

ITEM No.	RATING	REMARKS

Note 1. Used in Model DPS-12. 68Ω used in Model DPS-10. Other Models use 150Ω.
Note 2. 150Ω used in Models DP-908, DP-580, 560, 570, 479, 477

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	DECCA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2600Ω	3-4Ω	TR-109	A-3025	A-3332	24S53	S-12X	

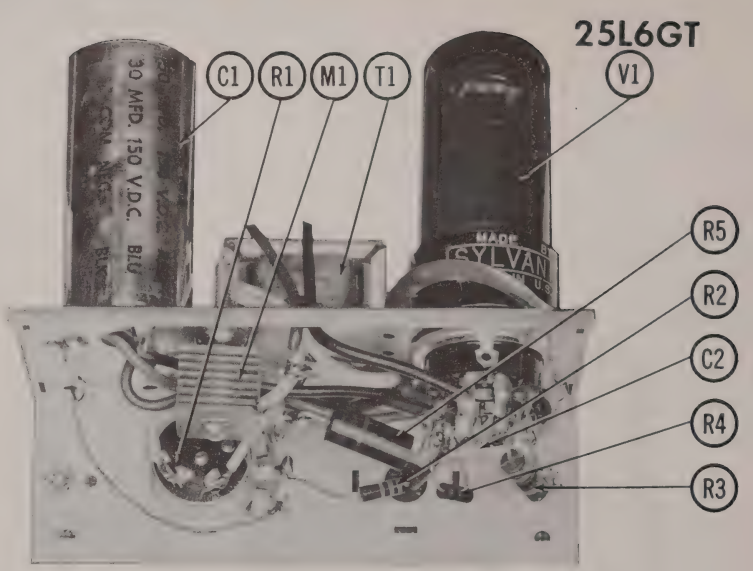
SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	DECCA PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	SP-402	4A07	

RECTIFIERS

ITEM No.	RATING	REPLACEMENT DATA					NOTES
	CURRENT (Measured)	DECCA PART No.	GENERAL ELECTRIC PART No.	RCA PART No.	SARKES TARZIAN PART No.	SYLVANIA PART No.	
M1	.045A	♦		1N1763 *	65A ♦	SR200 *	* Silicon Type ♦ Selenium Type

CHASSIS—BOTTOM VIEW



PHONO CARTRIDGE & NEEDLES

*NEEDLE LISTINGS SHOWN ARE FOR RESPECTIVE REPLACEMENT CARTRIDGES ONLY.

ITEM No.	REPLACEMENT DATA								NOTES
	DECCA PART No.		ASTATIC PART No.		ELECTRO-VOICE PART No.		SONOTONE PART No.		
	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	CARTRIDGE	NEEDLE*	
M2			420-TS-TB KR-314-T †	N8-1 * and N8-3*	46T				† Includes Tone Arm.

MISCELLANEOUS

ITEM No.	PART NAME	DECCA PART No.	NOTES
M3	Motor Idler Wheel		Phono Drive Walsco Part #1433

WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

MOTOROLA
MODELS X15A, E, N (Ch. HS-796)

MOTOROLA
MODELS X15A, E, N (Ch. HS-796)

TRADE NAME	Motorola Models X15A, X15E, X15N (Ch. HS-796)
MANUFACTURER	Motorola Inc., 4545 W. Augusta Blvd., Chicago 51, Illinois
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC RATING 7MA @ 9 Volts DC (No Signal, Min. Volume)
TUNING RANGE—BROADCAST 532 — 1620KC	10MA @ 9 Volts DC (Signal, Normal Volume)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

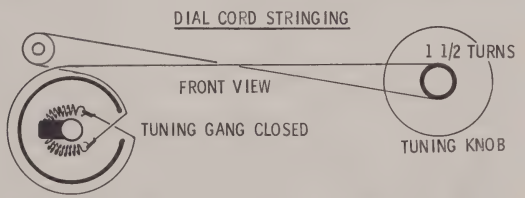
Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3, A4. GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A5, A6.....GENERAL CEMENT #5000, 5003, 5066, 8271, 8272, 8276, 8277, 8290, 8609, 8722, 9150, 9298
WALSCO #2515, 2516, 2518, 2519, 2525, 2541

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2, A3	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	532KC	Tuning gang fully closed.	"	A4	"
3.	"	1620KC	Tuning gang fully open.	"	A5	"
4.	"	1400KC	1400KC Signal.	"	A6	"
5.	"	600KC	600KC Signal.	"	A7	Adjust for maximum output. Repeat Steps 4 and 5.

DISASSEMBLY

1. Move support bracket away from bottom of receiver.
2. Insert coin in slot on cabinet bottom and twist.
3. Remove cabinet back.
4. Remove 3 chassis mounting screws, earphone jack nut and spacer.
5. Unsolder necessary leads and remove chassis.



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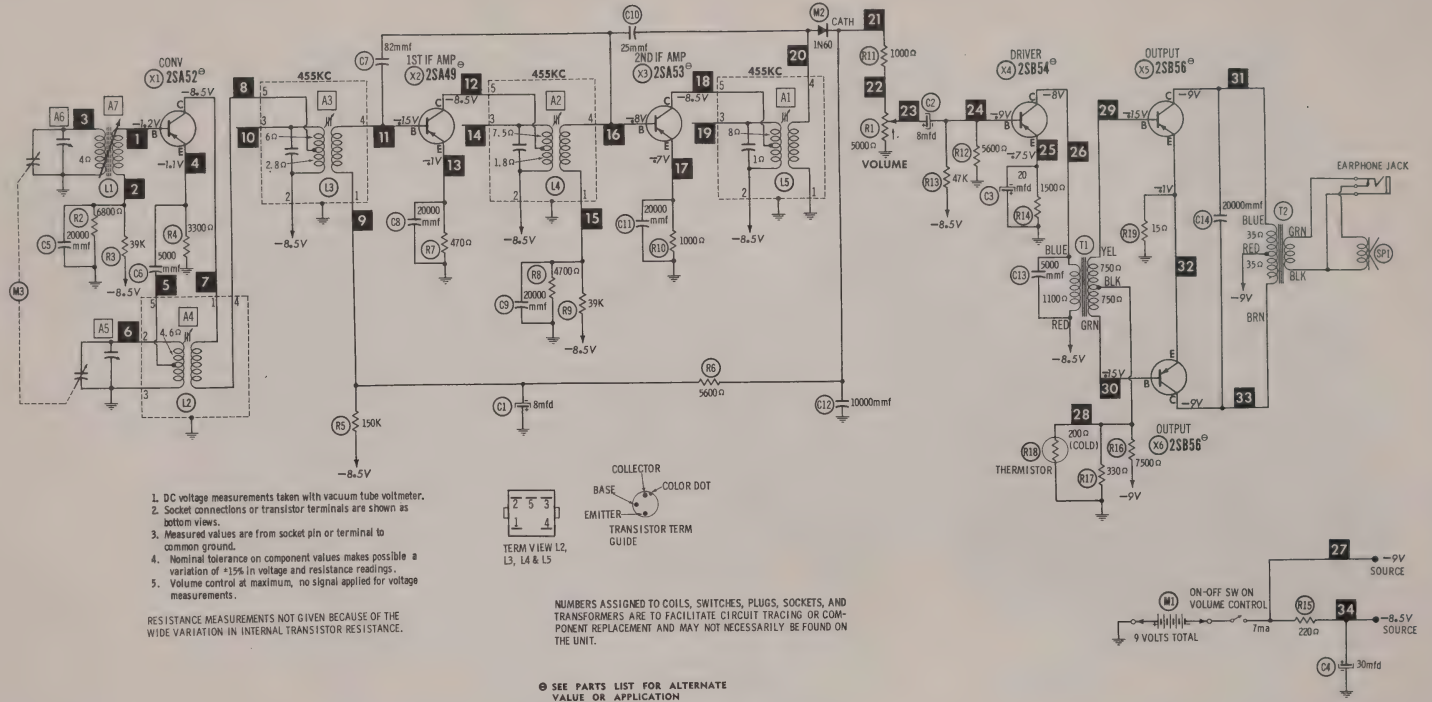
KF298

SET 513 FOLDER 8



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

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MOTOROLA
MODELS X15A, E, N (Ch. HS-796)

PARTS LIST AND DESCRIPTIONS

WIRING DATA

General-use Unshielded Hook-up Wire .....Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	2SA52①	Converter	2N412	2N486	2N411	PNP
X2	2SA49②	1st IF Amplifier	2N410	2N483	2N410	PNP
X3	2SA53③	2nd IF Amplifier	2N410			PNP
X4	2SB54④	Driver	2N406	2N362	2N408	PNP
X5	2SB56⑤	Output	2N408	2N632	2N408	PNP
X6	2SB56⑤	Output	2N408	2N632	2N408	PNP

① Alternate Type 2S52. ② Alternate Type 2S49. ③ Alternate Type 2S53. ④ Alternate Type 2S54. ⑤ Alternate Type 2S56.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						
	CAP.	VOLT.	MOTOROLA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	8	3	23K646733	BCD-3008	NLW8-10	TT6X8			
C2	8	3	23K646733	BCD-3008	NLW8-10	TT6X8			
C3	20	3	23K646734	BCD-3020	NLW20-6				
C4	30	10	23K646735	BCD12035	ECPB412	TT15X30			

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C6	5000		C80V502AM	DM-502	H-05D5	CCD-502	TA-250	TG-D50
C7	82			DTZ-82	22R5Q82	CM-15E-820M		
C8	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C9	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C10	25			DTZ-25	22R5Q25	CM-15E-240		
C11	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20
C12	10000		C80V103AM	DM-103	H-05S1		TA-103	TG-S10
C13	5000		C80V502AM	DM-502	H-05D5		TA-250	TG-D50
C14	20000		C80V203AM	DA-203	H-05S2		TA-120	TG-S20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MOTOROLA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	5000Ω	1/10	18K646736	B16-214				Volume & Switch

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	6800Ω	
R3	39K	
R4	3300Ω	
R5	150K	
R6	5600Ω	
R7	470Ω	

ITEM No.	RATING	REMARKS
R8	4700Ω	
R9	39K	
R10	1000Ω	
R11	1000Ω	
R12	5600Ω	
R13	47K	

ITEM No.	RATING	REMARKS
R14	1500Ω	
R15	220Ω	
R16	7500Ω	
R17	330Ω	
R18	200Ω(Cold)	Pt. #6K644680
R19	15Ω	

PRINTED BOARD

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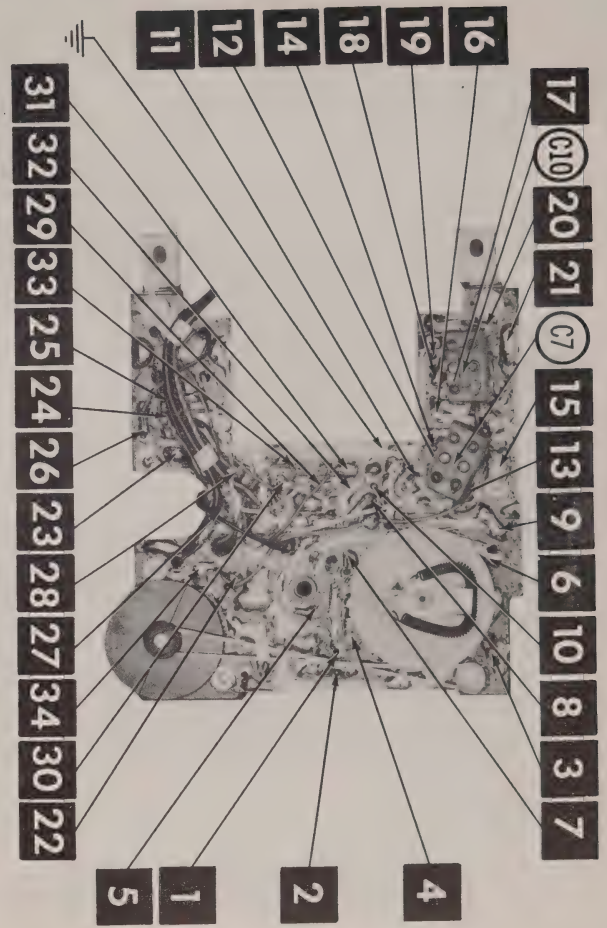


PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MOTOROLA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	24K646720				
L2	Osc. Coil	24K646721				
L3	1st IF Trans.	24K646722				
L4	2nd IF Trans.	24K646723				
L5	3rd IF Trans.	24K646724				

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1	1	25K646725					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MOTOROLA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	130Ω CT	6-8Ω	25K646726					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MOTOROLA PART No.	QUAM PART No.	
SP1	2 1/4"	PM	6-8Ω	50K646740	22A0628	

BATTERIES

ITEM No.	VOLTAGE	MOTOROLA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			P6		226		M-1600	

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA			NOTES
		MOTOROLA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M2	1N60	48K644681	1N60	1N60	Detector

MISCELLANEOUS

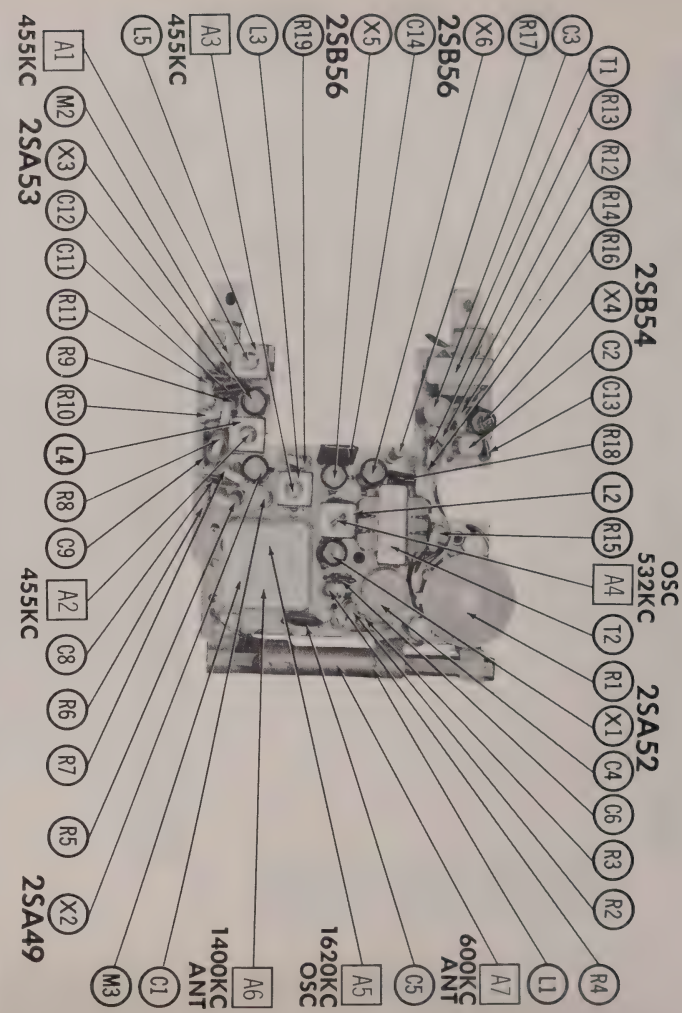
ITEM No.	PART NAME	MOTOROLA PART No.	NOTES
M3	Tuning Cap.	19K646727	2 Gang
	Printed Board	84K646739	Less All Components

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Scale	64K646748	
Knob	36K646742	Tuning
Knob	36K646752	Volume
Cabinet Back	1V646892	Black, Model X15E
Cabinet Back	1V646893	Brown, Model X15N
Cabinet Back	1V646891	Gray-Blue, Model X15A
Cabinet Front	16K646755	Black, Model X15E
Cabinet Front	16K646759	Brown, Model X15N
Cabinet Front	16K646757	Gray-Blue, Model X15A

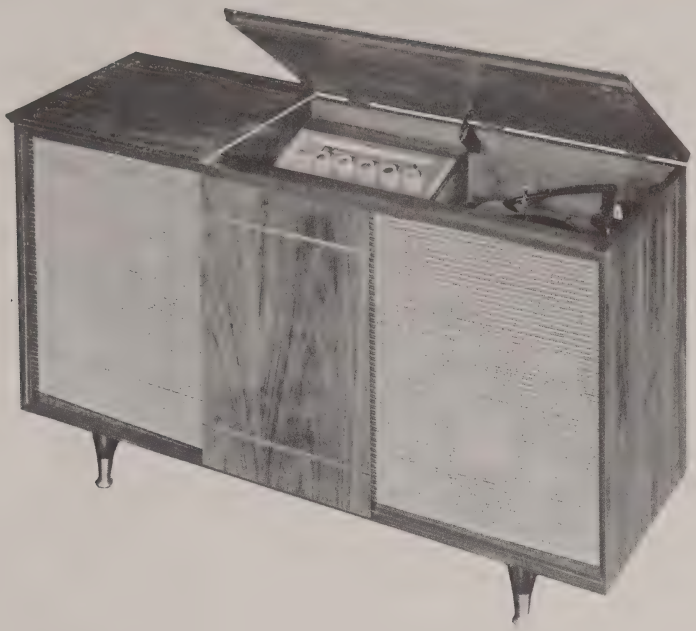
CHASSIS—TOP VIEW



PHOTOFACT® Folder

MUNTZ
MODEL 820

MUNTZ
MODEL 820



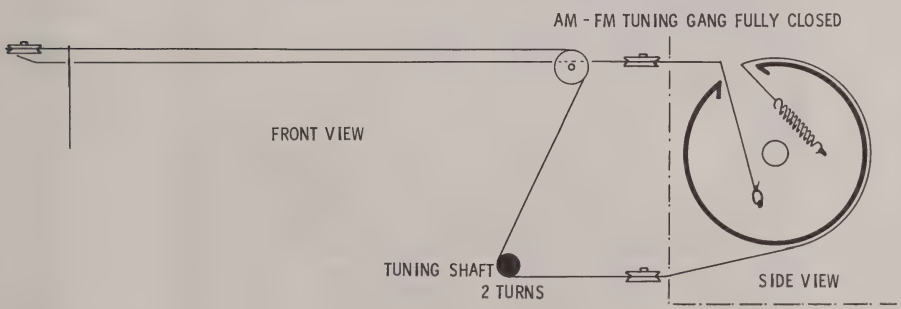
MUNTZ
MODEL 820

TRADE NAME	Muntz Model 820		
MANUFACTURER	Muntz TV, Inc., 1000 Grey Ave., Evanston, Illinois		
TYPE SET	AC Operated 17 Tube FM-AM Receiver With Stereo Amplifier		
POWER SUPPLY	110 - 120 Volts AC, 60 Cycles	RATING	145 Watts, 1.4 Amp. @ 117 Volts AC (Less Motor)
TUNING RANGE—BROADCAST	535 — 1620KC	FREQ. MOD.	88 — 108MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #PH-0020-1 USED IN SOME VERSIONS — SEE WEBCOR 170 — PHOTOFACT SET 447 FOLDER 13 OR RECORD CHANGER MANUAL RC-12

FOR SERVICE INFORMATION ON RECORD CHANGER PART #PH-0021-1 USED IN SOME VERSIONS — SEE V-M 1201 — PHOTOFACT SET 436 FOLDER 18 OR RECORD CHANGER MANUAL RC-12

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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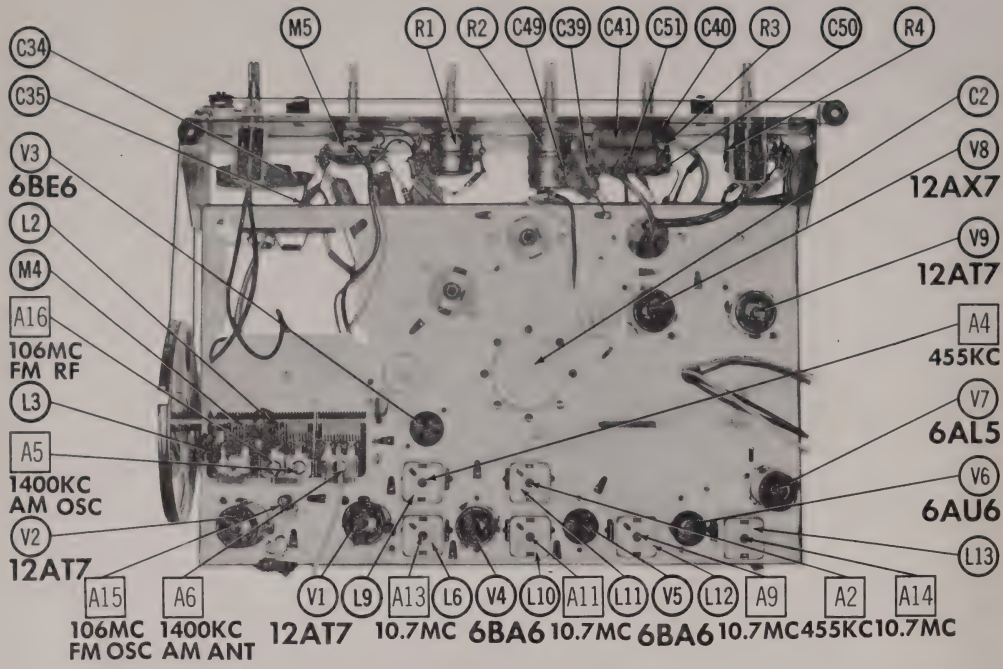
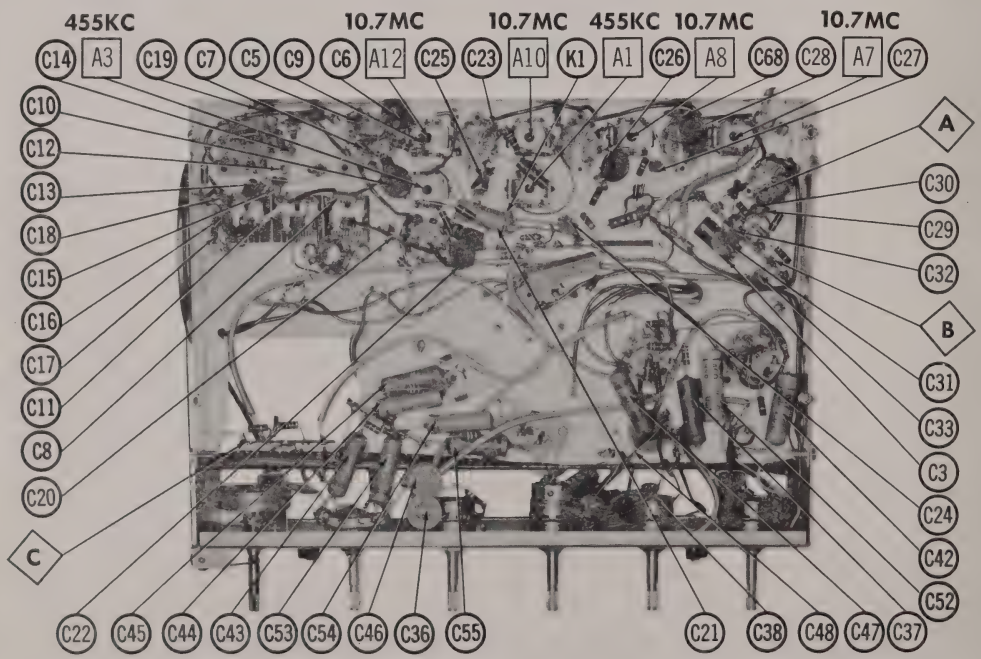
KN086

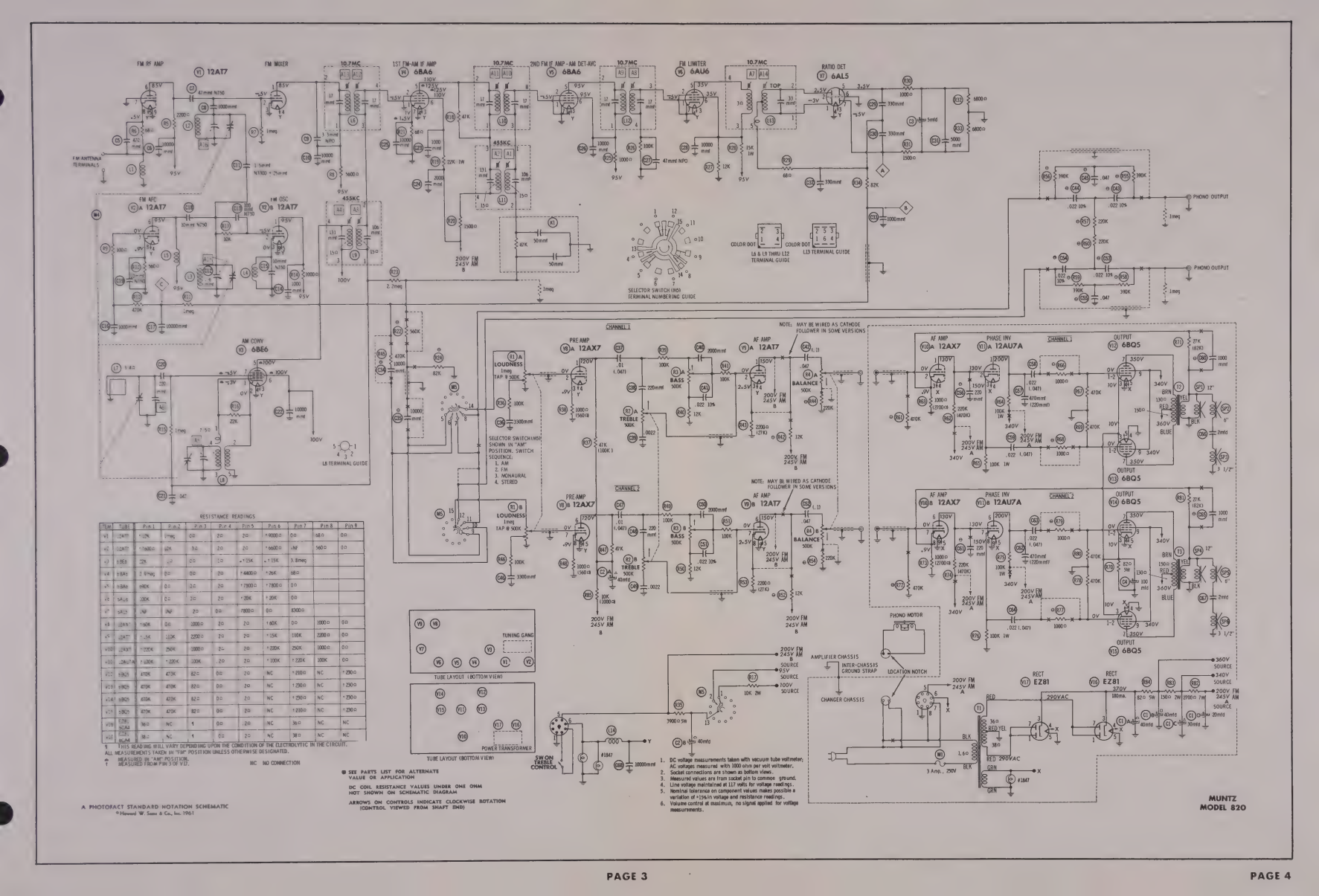
SET 513 FOLDER 9



TUNER CHASSIS - TOP VIEW



TUNER CHASSIS BOTTOM VIEW - ALIGNMENT & CAPACITOR IDENT.



RESISTANCE READINGS

Tube	Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	12AT7	*120K	1meg	0Ω	2Ω	2Ω	*9000Ω	0Ω	68Ω	0Ω
V2	12AT7	*6600Ω	62K	3Ω	2Ω	2Ω	*6600Ω	.1MF	560Ω	0Ω
V3	6BE6	22K	1MF	0Ω	1Ω	2Ω	*135K	*135K	3.8meg	
V4	6BA6	2.8meg	0Ω	0Ω	2Ω	2Ω	*44000Ω	*26K	68Ω	
V5	6BA6	680K	0Ω	0Ω	2Ω	2Ω	*7800Ω	*7800Ω	0Ω	
V6	6AU6	220K	0Ω	0Ω	2Ω	2Ω	*20K	*20K	0Ω	
V7	6AL5	1MF	1MF	2Ω	0Ω	0Ω	7800Ω	0Ω	8300Ω	
V8	12AX7	1meg	0Ω	1000Ω	2Ω	2Ω	*60K	0Ω	1000Ω	0Ω
V9	12AT7	*35K	110K	2200Ω	2Ω	2Ω	*15K	110K	2200Ω	0Ω
V10	12AX7	*220K	250K	1000Ω	2Ω	2Ω	*220K	250K	1000Ω	0Ω
V11	12AU7A	*100K	*220K	100K	2Ω	2Ω	*100K	*220K	100K	0Ω
V12	6BQ5	470K	470K	820Ω	0Ω	2Ω	NC	*250Ω	NC	*250Ω
V13	6BQ5	470K	470K	820Ω	0Ω	2Ω	NC	*250Ω	NC	*250Ω
V14	6BQ5	470K	470K	820Ω	0Ω	2Ω	NC	*250Ω	NC	*250Ω
V15	6BQ5	470K	470K	820Ω	0Ω	2Ω	NC	*250Ω	NC	*250Ω
V16	EZ81 SCA4	360	NC	1	0Ω	2Ω	NC	360	NC	NC
V17	EZ81 SCA4	360	NC	1	0Ω	2Ω	NC	360	NC	NC

* THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
= MEASURED IN "AM" POSITION.
† MEASURED FROM PIN 3 OF V12.
NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter. AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±5% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

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MUNTZ MODEL 820

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Suggested Alignment Tools: A1, A2, A3, A4, A8 thru A15... GENERAL CEMENT #5097, 8727
WALSCO #2515
A5, A6, A17.....GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .01mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400~ Mod.)	(AM) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	1400KC	1400KC	"	A5, A6	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
3.	High side thru .001mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (A). Common to chassis.	A7, A8, A9, A10, A11, A12, A13	Adjust for maximum deflection.
4.	"	"	"	DC probe to point (B). Common to chassis.	A14	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
3.	High side thru .001mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. Amp. to point (A). Low side to chassis.	A7, A8, A9, A10, A11, A12, A13	Disconnect stabilizing Capacitor C3. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C3.
4.	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A14	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A7 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

Short point C to chassis.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	Across antenna terminals.	106MC (Unmod.)	(FM) 106MC	DC probe to point (A). Common to chassis.	A15, A16	Adjust for maximum deflection while rocking tuning gang.
6.	"	90MC	90MC	"	L3, L2	Adjust by expanding or compressing coil turns for maximum deflection while rocking tuning gang.

FIG. 1

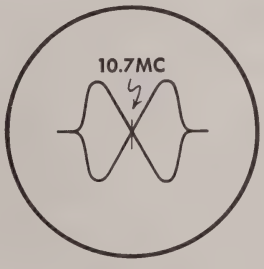
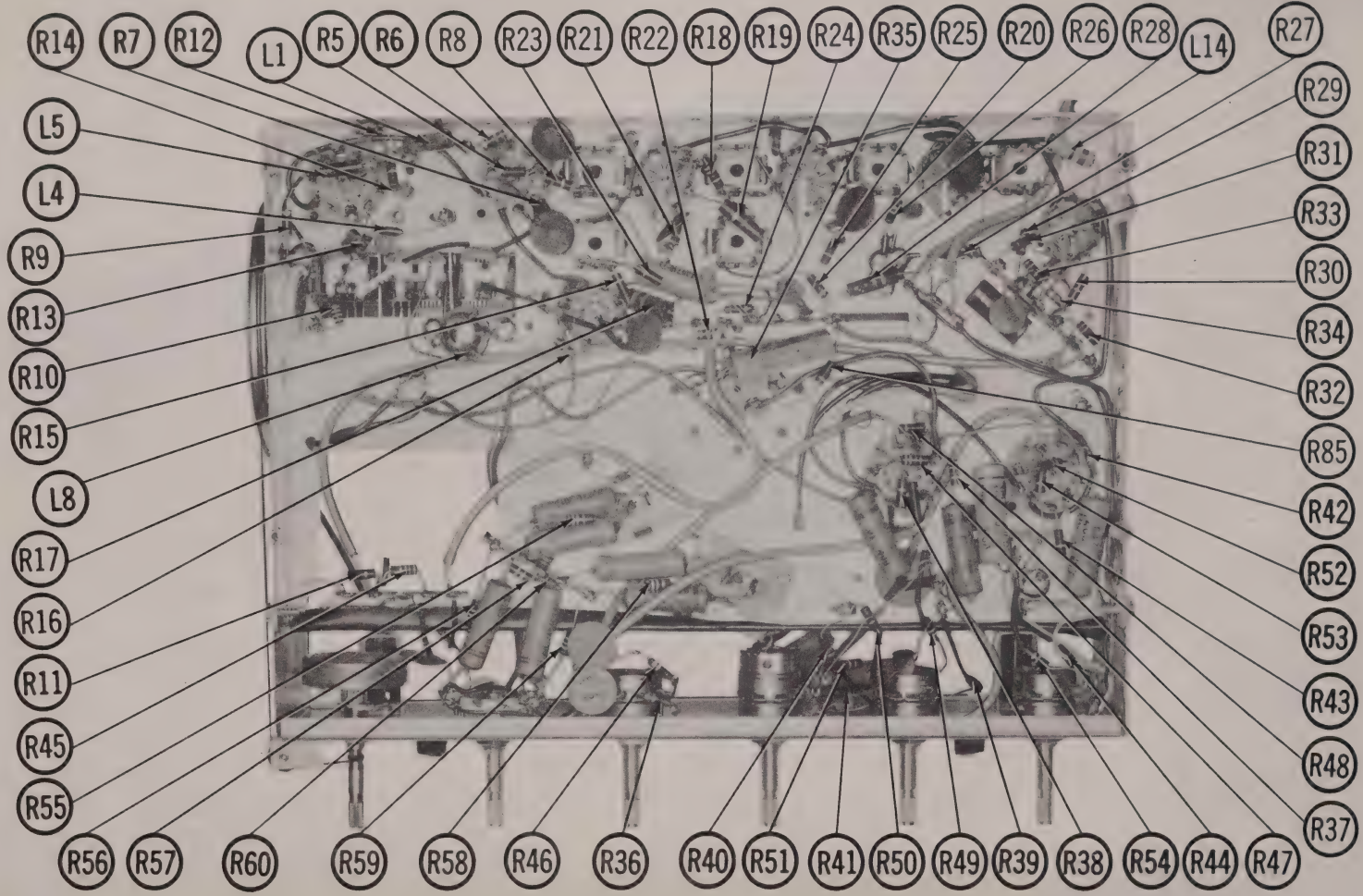
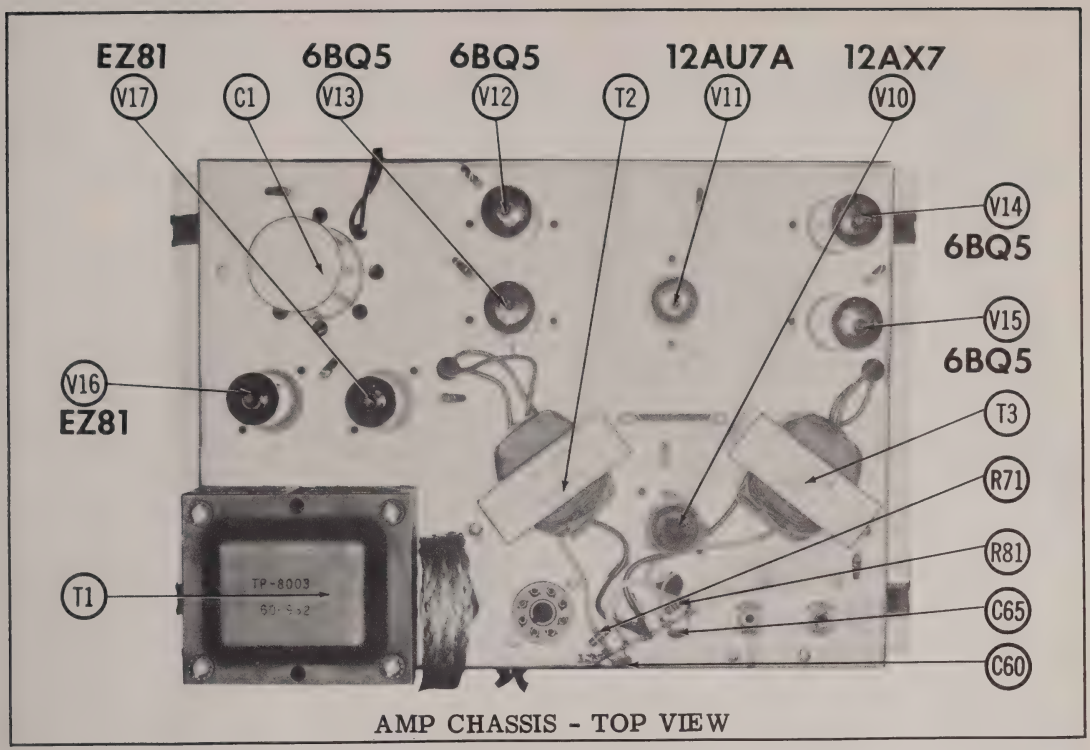


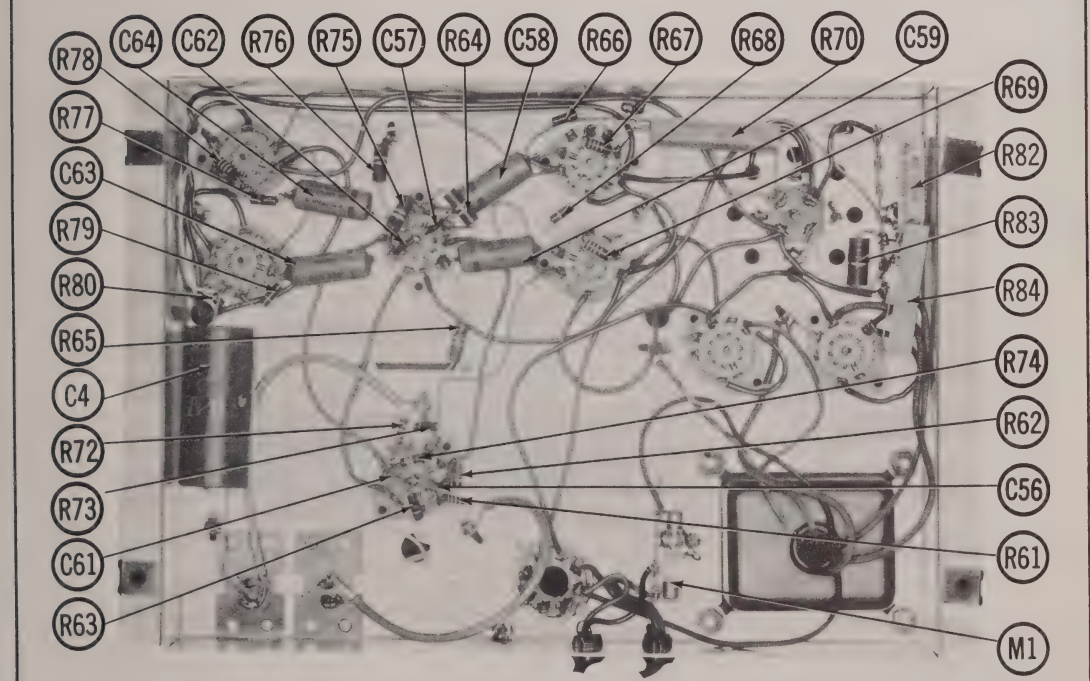
FIG. 2



TUNER CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



AMP CHASSIS - TOP VIEW



AMP CHASSIS - BOTTOM VIEW

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆)
V1	FM RF Amp. -FM Mixer	12AT7
V2	FM Osc. -FM AFC	12AT7
V3	AM Converter	6BE6
V4	1st FM-AM IF Amplifier	6BA6
V5	2nd FM IF Amplifier-AM Det. -AVC	6BA6
V6	FM Limiter	6AU6
V7	Ratio Detector	6AL5
V8	Channel 1 Preamp. - Channel 2 Preamp.	12AX7
V9	Channel 1 AF Amp. - Channel 2 AF Amp.	12AT7 Note 1
V10	Channel 1 AF Amp. - Channel 2 AF Amp.	12AX7
V11	Channel 1 Phase Inv. - Channel 2 Phase Inv.	12AU7A
V12	Channel 1 Output	6BQ5
V13	Channel 1 Output	6BQ5
V14	Channel 2 Output	6BQ5
V15	Channel 2 Output	6BQ5
V16	Rectifier	EZ81/6CA4
V17	Rectifier	EZ81/6CA4

Note 1. Tube may be connected as cathode follower in some versions.

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA MUNTZ PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲40	350	CE-8002	AFH4-06-40	D0054	FP428.4	TMQ-4649	TVL-4774	
B	■40	350							
C	▲30	350							
D	20	350							
C2A	▲40	350	CE-8005	AFH2-57	B0450	FP238	TMD-2390	TVL-2737	
B	▲40	350							
C3	5	50	CE-9100	PRS1310	BBR5-50	TC30	TD-5-50	TVA-1303	
C4	100	150	CE-0038	PRS1510	BR10015	TC493	TD-100-150	TVA-1420	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C5	470		BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	47 N750		N750-DI 47	DTN-47	C10Q47U	CCTN-470	CNO-447	10TCU-Q47
C8	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C9	3.3 NPO		NPO-DI 3.3	DTZ-3R3	C10V33C	CCTO-3R3	CN7-533	10TCC-V33

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C10	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C11	1.5 N3300 ± .25mmf	◆CC-0204				*		
C12	1-6	◆CT-0022		829-6		VC-3	CCT552	
C13	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C14	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C15	10 N750		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C16	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	10 N750		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C19	10 N750		N750-DI 10	DTN-10	C10Q1U	CCTN-100	CN7-410	10TCU-Q10
C20	220		BPD-00022	DD-221	L10T22	CCD-221	B-322	10TS-T22
C21	.047 200V		P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C24	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C25	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C26	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C27	47 NPO		NPO-DI 47	DTZ-47	C10Q47C	CCTO-470	CNO-447	10TCC-Q47
C28	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C29	330		BPD-00033	DD-331	L10T33	CCD-331	B-333	10TS-T33
C30	330		BPD-00033	DD-331	L10T33	CCD-331	B-333	10TS-T33
C31	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50
C32	330		BPD-00033	DD-331	L10T33	CCD-331	B-333	10TS-T33
C33	1000		BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C34	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	10000	Note 1	BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C36	3300		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C37	.01 400V	(.047) †	P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S1
C38	220		BPD-00022	DD-221	L10T22	CCD-221	B-322	10TS-T22
C39	.0022 600V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C40	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C41	.022 400V 10%		V84C4S22-10%			PM4S22	4DP-2-223	GEM-1612	4TM-S22
C42	.047 400V	(.1) †	P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C43	.022 400V 10%	Note 1	V84C4S22-10%			PM4S22	4DP-2-223	GEM-1612	4TM-S22
C44	.022 400V 10%	Note 1	V84C4S22-10%			PM4S22	4DP-2-223	GEM-1612	4TM-S22
C45	.047 200V	Note 1	P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C46	3300		BPD-0033	DD-332	BYA10D33	CCD-332	B-233	5HK-D33
C47	.01 400V	(.047) †	P488N-01	D6-103	CUB4S1	4DP-1-103	GEM-411	4TM-S10
C48	220		BPD-00022	DD-221	L10T22	CCD-221	B-322	10TS-T22
C49	.0022 600V		P688N-0022	D6-222	CUB6D22	6DP-1-222	GEM-6222	6TM-D22
C50	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C51	.022 400V 10%		V84C4S22-10%			PM4S22	4DP-2-223	GEM-1612	4TM-S22
C52	.047 400V	(.1) †	P488N-047	DD-503	CUB4S47	4DP-3-473	GEM-4147	4TM-S47
C53	.022 400V 10%	Note 1	V84C4S22-10%			PM4S22	4DP-2-223	GEM-1612	4TM-S22
C54	.022 400V 10%	Note 1	V84C4S22-10%			PM4S22	4DP-2-223	GEM-1612	4TM-S22
C55	.047 200V	Note 1	P288N-047	DD-503	CUB2S47	4DP-3-473	GEM-4147	2TM-S47
C56	220	Note 1	BPD-00022	DD-221	L10T22	CCD-221	B-322	10TS-T22
C57	470	(220) †	BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C58	.022 600V	(.047) †	P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22

PARTS LIST AND DESCRIPTIONS (Continued)

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C59	.022 600V	(.047) †	P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C60	1000	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C61	220	Note 1	BPD-00022	DD-221	L10T22	CCD-221	B-322	10TS-T22
C62	470	(220) †	BPD-00047	DD-471	BYA10T47	CCD-471	B-347	10TS-T47
C63	.022 600V	(.047) †	P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C64	.022 600V	(.047) †	P688N-022	DD-203	CUB6S22	6DP-2-223	GEM-6122	6TM-S22
C65	1000	Note 1	BPD-001	DD-102	BYA10D1	CCD-102	B-210	5HK-D10
C66	2mfd 50V	#CP-0098	P282Z-2.0		MP2W2			
C67	2mfd 50V	#CP-0098	P282Z-2.0		MP2W2			
C68	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10

Note 1. Not used in some versions.
† Alternate Value.
* Not normally in distributor's stock. Available thru distributor on order to manufacturer.
# Muntz Part Number.

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	MUNTZ PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg	½	VC-8011	BT-71			FBI6T55	Loudness, Channel 1
	500K Tap	½						
B	1meg	½		STR-71			RU16T55	Loudness, Channel 2
	500K Tap	½						
C	Shaft			Not Req.			CS3500	
R2A	500K	½	VC-8013	B-59	AD47-500K-S		FA55L	Treble, Channel 1
B	500K	½		SR-59	Not Req.		RU55L	Treble, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	
D	Switch			KR-1	SWE-12		US-41	
R3A	500K	½	VC-8012	B-59	AD47-500K-S		FA55L	Bass, Channel 1
B	500K	½		SR-59	Not Req.		RU55L	Bass, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	
R4A	500K	½	VC-8012	B-59	AD47-500K-S		FA55L	Balance, Channel 1
B	500K	½		SR-59	Not Req.		RU55L	Balance, Channel 2
C	Shaft			Not Req.	KSS-3		CS3500	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R5	2200Ω	
R6	68Ω	
R7	1meg	
R8	5600Ω	
R9	100Ω	
R10	470K	
R11	1meg	
R12	560Ω	
R13	10K	
R14	1000Ω	
R15	1meg	
R16	22K	
R17	10K 2W	
R18	47K	
R19	22K 1W	
R20	1500Ω	
R21	68Ω	
R22	560K	Note 1
R23	2.2meg	
R24	82K	Note 1
R25	1000Ω	
R26	100K	
R27	12K	
R28	15K 1W	
R29	68Ω	
R30	1000Ω	
R31	1500Ω	

ITEM No.	RATING	REMARKS
R32	6800Ω	
R33	6800Ω	
R34	82K	
R35	3900Ω 5W	IRC#PW5-3.9KΩ
R36	100K	
R37	47K	(100K) *
R38	1000Ω	(560Ω) *
R39	100K	
R40	12K	
R41	100K	
R42	12K	
R43	2200Ω	(27K) *
R44	220K	Note 1
R45	470K	Note 1
R46	100K	
R47	47K	
R48	1000Ω	(560Ω) *
R49	100K	
R50	12K	
R51	100K	
R52	12K	Note 1
R53	2200Ω	(27K) *
R54	220K	Note 1
R55	390K	Note 1
R56	390K	Note 1
R57	220K	Note 1
R58	390K	Note 1

ITEM No.	RATING	REMARKS
R59	390K	Note 1
R60	220K	Note 1
R61	470K	Note 1
R62	220K	(470K) *
R63	1000Ω	(2700Ω) *
R64	100K 1W	
R65	100K 1W	
R66	1000Ω	Note 1
R67	470K	
R68	1000Ω	
R69	470K	
R70	82Ω 5W	IRC#PW5-82Ω
R71	27K 5W	(82K) *
R72	470K	
R73	1000Ω	(2700Ω) *
R74	220K	(470K) *
R75	100K 1W	
R76	100K 1W	
R77	1000Ω	
R78	470K	
R79	1000Ω	
R80	470K	
R81	27K	(82K) *
R82	2700Ω 7W	IRC#PW10-2.7K
R83	150Ω 2W	
R84	82Ω 5W	IRC#PW5-82Ω
R85	10K	(1000Ω) *

* Alternate Value.
Note 1. Not used in all models.

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	MUNTZ PART No.	REPLACEMENT DATA
K1	AM Det. RF Filter	50mmf, 50mmf, 47K	CC-8001	Aerovox PA-99 Centralab PC-52 Cornell-Dubilier111TM3 Sprague D-3

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		MUNTZ PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	FM Ant. Coil	LC-0080	BC-561	4602	RTC-8515	luh, IRC Part #CLA
L2	FM RF Coil	LC-8004				
L3	FM Osc. Coil	LC-8001				
L4	Cathode Choke	LC-9125	BC-561	4602	RTC-8515	luh
L5	RF Choke	LC-8003	BC-564	4608	RTC-8518	3.3uh
L6	1st FM IF Trans.	LI-8002	FM-254	1463	RTC-8599	
L7	Loop Ant.	AN-0025				
L8	AM Osc. Coil	LO-8001	BC-393	69-OSC	RTC-8646	
L9	1st AM IF Trans.	LI-8001	BC-352	12-C1	RTC-8632	
L10	2nd FM IF Trans.	LI-8002	FM-254	1463	RTC-8599	
L11	2nd AM IF Trans.	LI-8001	BC-353	12-C2	RTC-8633	
L12	3rd FM IF Trans.	LI-8002	FM-254	1463	RTC-8599	
L13	Ratio Det.	LO-8002	FM-255	1465	RTC-8600	
L14	Fil. Choke	LC-0080	BC-561	4602	RTC-8515	luh, IRC Part #CLA

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MUNTZ PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V ⓐ 1.4A	580VCT ⓐ .180A	6.3V ⓐ 8.5A	TP-8003		P-8355 ①			① Mounting Difference.

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	MUNTZ PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	4100Ω CT	6-8Ω	TA8005	A-2901 ①	A-3870	26S61 ①	S-55X	① Drill new mounting holes.
T3	4100Ω CT	6-8Ω	TA8005	A-2901 ①	A-3870	26S61 ①	S-55X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	MUNTZ PART No.	QUAM PART No.	
SP1	12"	PM	6-8Ω	SK-0035	12A6AZ8	
SP2	6"	PM	3-4Ω	SK-0026-1	6A1	
SP3	3½"	PM	4-6Ω	SK-0031	3A15TZ4.4	
SP4	12"	PM	6-8Ω	SK-0035	12A6AZ8	
SP5	6"	PM	3-4Ω	SK-0026-1	6A1	
SP6	3½"	PM	4-6Ω	SK-0031	3A15TZ4.4	

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			MUNTZ PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	3AG	3A 250V P/T	FU-0004		318004 (3AG 3A 250V) P/T		GJV4	

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	MUNTZ PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M2		13TBX		26DST		35	J-43D & J-47XD	8TA4-SD	N-8TA-SD

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA	REMARKS
	MUNTZ PART No. / JENSEN PART No.	
M3	S-69X† or S-69XSD †♦ or S-69XDD♦	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	MUNTZ PART No.	NOTES
M4	Tuning Cap.	CT-8007	4 Gang (AM Sections: Ant. 15-351mmf, Osc. 11-108mmf)
M5	Switch	SW-8004	Function (Rotary Wafer Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	DG-8003	
Dial Pointer	PR-8007	
Knob	KB-8005	Tuning, Loudness, Bass, Treble, Balance, Function
Cabinet	CW-0113	Walnut
Cabinet	CW-0113-2	Mahogany
Cabinet	CW-0113-4	Blonde
Leg Assembly	AS-0531	With Ferrule, Mahogany
Leg Assembly	AS-0531-1	With Ferrule, Black Satin
Leg Assembly	AS-0531-2	With Ferrule, Walnut

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

NORELCO
MODEL B4X87A

NORELCO
MODEL B4X87A

NORELCO
MODEL B4X87A

TRADE NAME	Norelco Model B4X87A
SUPPLIER	North American Phillips Co., Inc., 230 Duffy Ave., Hicksville, N. Y.
TYPE SET	AC Operated 7 Tube FM-BC-SW Receiver
POWER SUPPLY	90/110/127/145/190/220 Volts AC, 60 Cycles RATING 41 Watts, .38 Amp. @117 Volts AC(Using 127V Tap)
TUNING RANGES—BROADCAST 517-1622KC	FREQ. MOD. 88-108MC SHORT WAVE 5.8-12.3MC

SET 513 FOLDER 10

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KK019

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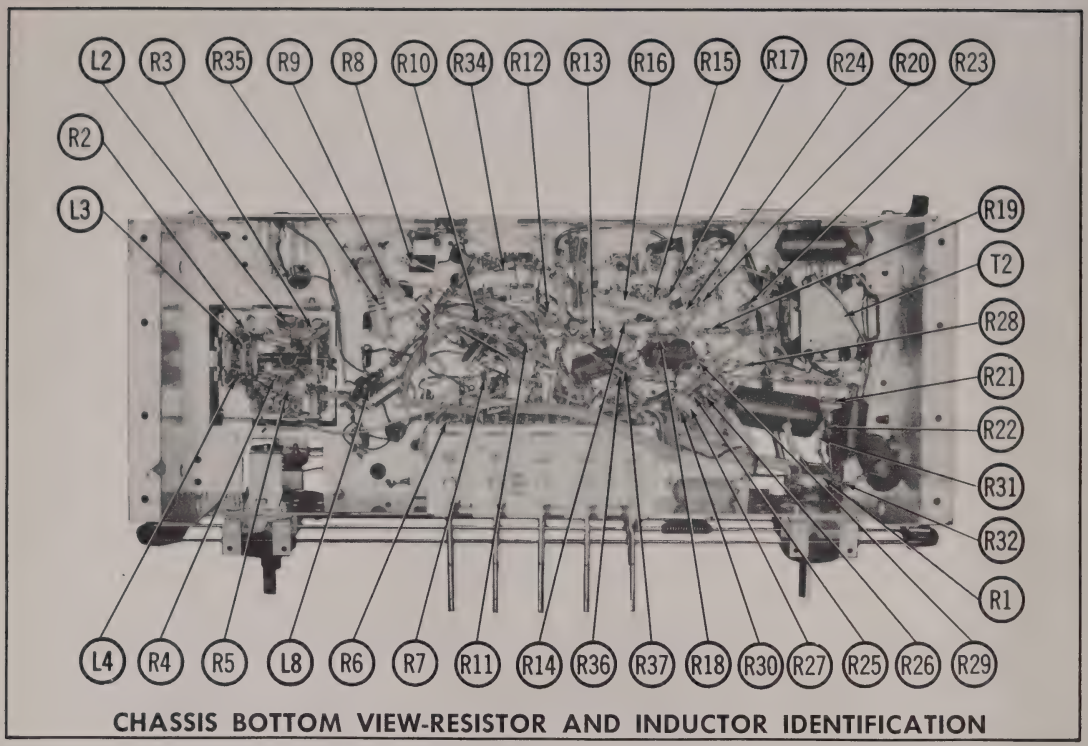
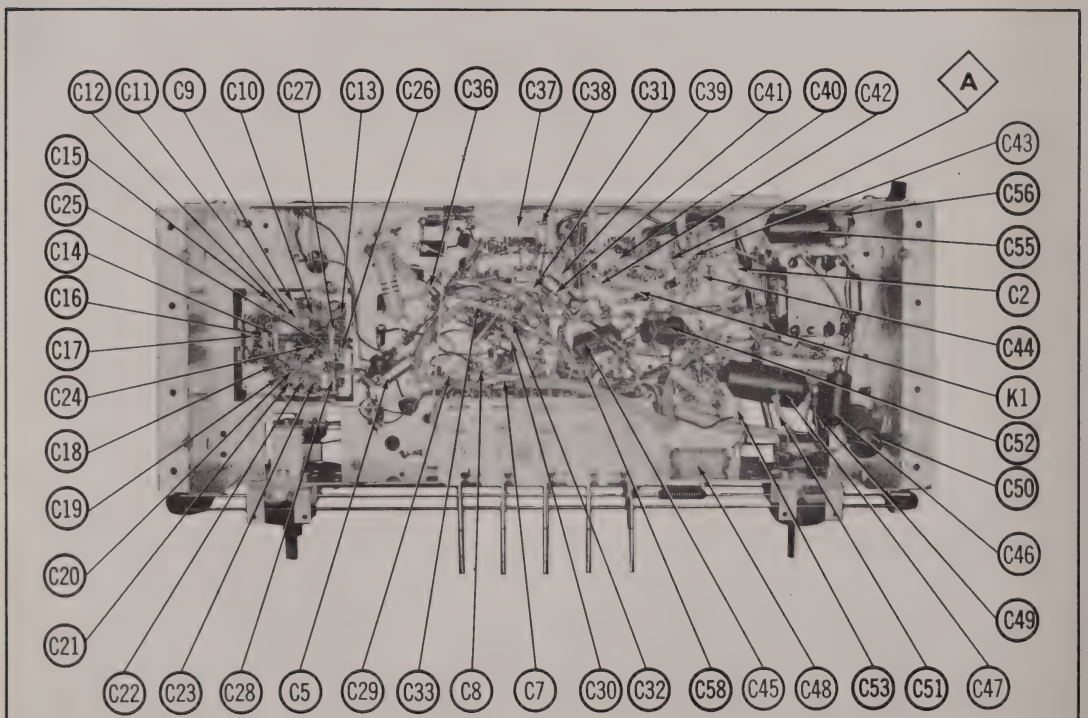
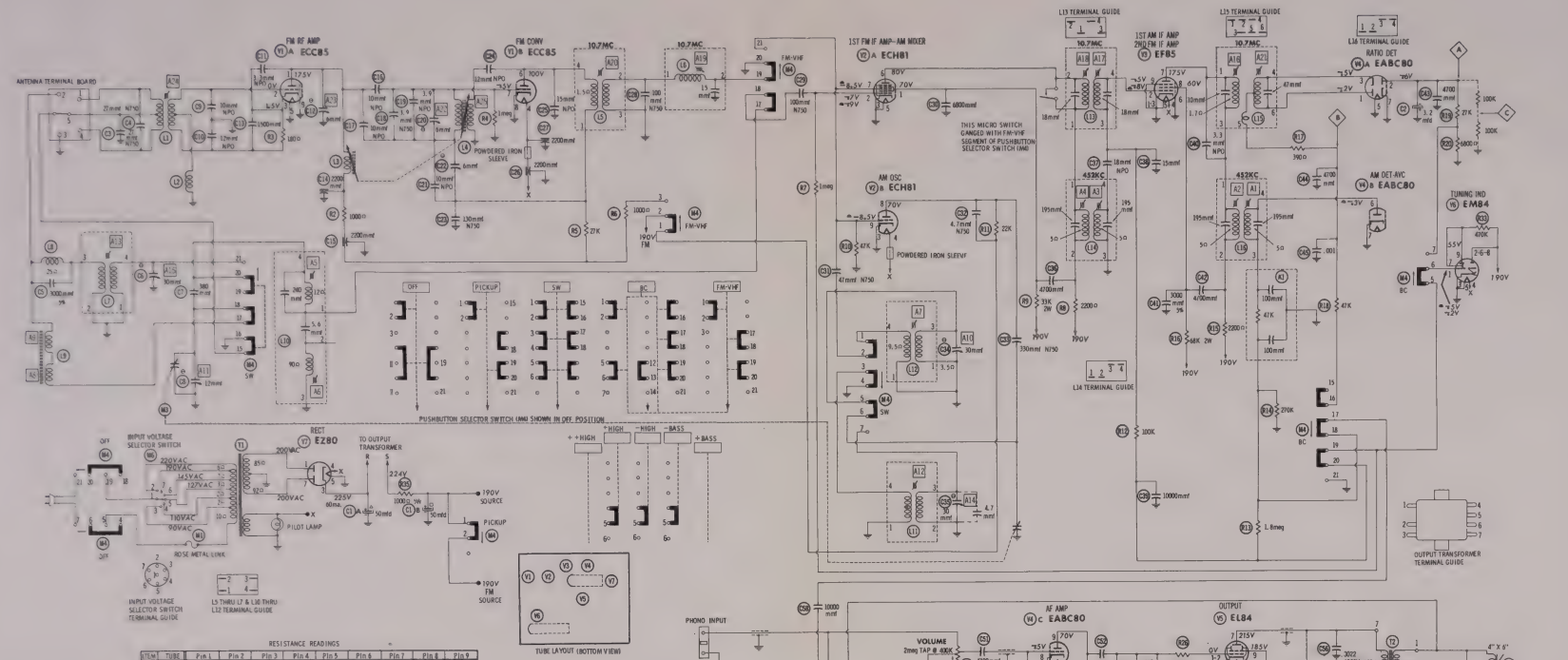


CHASSIS BOTTOM VIEW-RESISTOR AND INDUCTOR IDENTIFICATION



CHASSIS BOTTOM VIEW-CAPACITOR IDENTIFICATION



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	↑3000Ω	0Ω	180Ω	1Ω	0Ω	↑29K	1meg	0Ω	
V2	ECH81	↑4K	1.6meg ↓3.7meg	0Ω	1Ω	0Ω	↑3200Ω	0Ω ↓47K	↓23K	0Ω ↓47K
V3	EF85	0Ω	100K ↓2.6meg	0Ω	1Ω	0Ω	0Ω	↑32000Ω	↑69K	0Ω
V4	EABC80	INF	34K	INF	1Ω	0Ω	↓315K	0Ω	10meg	↑220K
V5	EL84	NC	820K	180Ω	1Ω	0Ω	NC	↑520Ω	NC	↑820Ω
V6	EM84	8000Ω	NC	NC	0Ω	0Ω	1Ω	↑1000Ω	↑470K	NC ↑470K
V7	EZ80	0Ω	NC	↑	0Ω	0Ω	1Ω	NC	920Ω	NC NC

ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
↑ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
↓ MEASURED IN "AM" POSITION.
↑ MEASURED FROM PIN 3 OF V7.
NC NO CONNECTION

● SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION

DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM

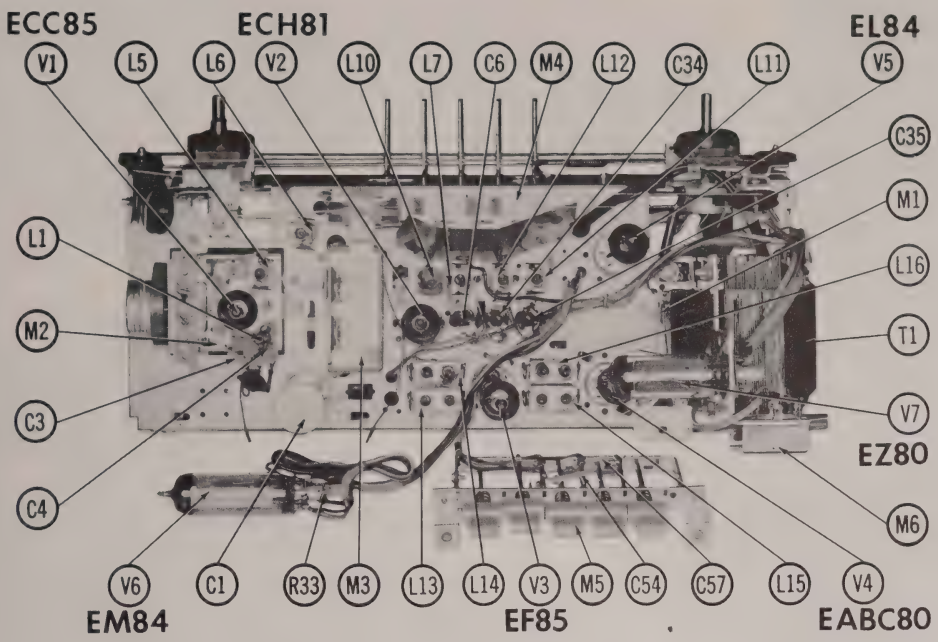
ARROWS ON CONTROLS INDICATE CLOCKWISE ROTATION (CONTROL VIEWED FROM SHAFT END)

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

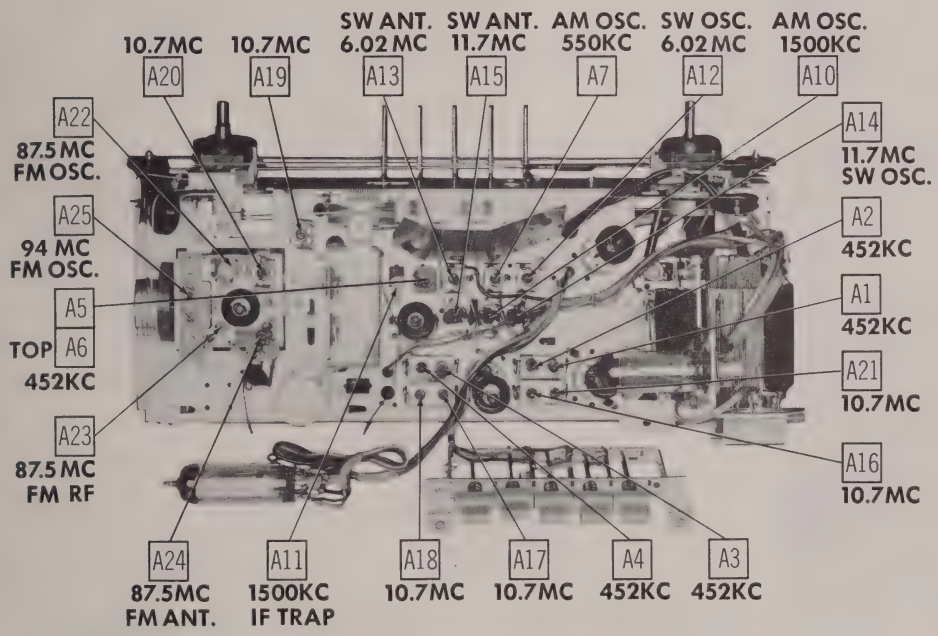
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
*Howard W. Sams & Co., Inc. 1961

NORELCO MODEL B4X87A



CHASSIS TOP VIEW



CHASSIS TOP VIEW

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Suggested Alignment Tools:
A1 thru A6, A11, A22, A23..... GENERAL CEMENT #8721, 8722
WALSCO #2519
A7, A12, A13, A16, A21, A24.... GENERAL CEMENT #8282, 8606, 8606-L, 9091
WALSCO #2526, 2541, 2542, 2543, 2544

AM ALIGNMENT — SELECTOR SWITCH IN BC OR SW POSITION AS INDICATED

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to pin 2 (grid) of Mixer. Low side to chassis.	452KC (400~ Mod.)	(BC) Tuning gang fully open.	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loosely couple to AM Loop stick.	"	(BC) 550KC	"	A5, A6	Adjust for MINIMUM output.
3.	"	550KC	"	"	A7, A8, A9	Adjust for maximum output.
4.	"	1500KC	(BC) 1500KC	"	A10, A11	"
5.	"	6.02MC	(SW) 6.02MC	"	A12, A13	"
6.	"	11.7MC	(SW) 11.7MC Signal.	"	A14, A15	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM — SELECTOR SWITCH IN FM POSITION

Connect two matched 100K (±1%) resistors in series from point (A) to chassis. The junction of these two resistors is alignment point (C) as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
7.	Across FM antenna terminals.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (A). Common to chassis.	A16, A17, A18, A19, A20	Adjust for maximum deflection.
8.	"	"	"	DC probe to point (B). Common to point (C).	A21	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE — SELECTOR SWITCH IN FM POSITION

Use frequency modulated signal with 60~ modulation and 450KC sweep. Use 120~ sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
7.	Across FM antenna terminal.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. amp. to point (A). Low side to chassis.	A16, A17, A18, A19, A20	Disconnect stabilizing Capacitor C2. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C2.
8.	"	"	"	Vert. Amp. to point (B). Low side to chassis.	A21	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT — SELECTOR SWITCH IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
9.	Across FM antenna terminals.	87.5MC (Unmod.)	(FM) Tuning gang fully closed.	DC probe to point (A). Common to chassis.	A22, A23, A24	Adjust for maximum deflection.
10.	"	94MC	"	"	A25	"

FIG. 1

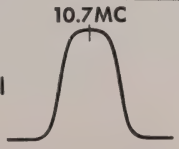
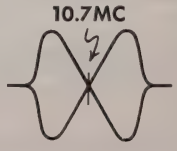


FIG. 2



PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amp. -FM Conv.	ECC85	V5	Output	EL84
V2	1st FM IF Amplifier-AM Mixer-AM Osc.	ECH81	V6	Tuning Indicator	EM84
V3	2nd FM-1st AM IF Amp.	EF85	V7	Rectifier	EZ80
V4	Ratio Detector-AM Det. -AVC-AF Amp.	EABC80			

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA NORELCO PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	▲50	300	913/P50-50		XB0254	FP137	TMS-1530	TVL-1567	
B	■50	300				TC79	TD-50-450	TVA-1713	
C2	3.2	70	909/E3, 2	PRS1400	BBR4-150	TT80X4	TD-4-150	TVA-1402	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	27 N750		N750-SI 27	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C4	27 N750		N750-SI 27	TCN-27	C10Q27U	CCTN-270	CN7-427	10TCU-Q27
C5	3000 5%				1R5D3	CM-20B-302J	MCE461	MS-23
C6	30	Note 1						
C7	380		SI 390	D6-391	L10T39	CCD-391	B-339	10TS-T39
C8	12	Note 1						
C9	10 NPO		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C10	12 NPO		NPO-SI 12	TCZ-12	C10Q12C	CCTO-120	CNO-412	10TCC-Q12
C11	3.3 NPO		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C12	6	Note 1						
C13	1500		SI 1500	D6-152	BYA10D15	CCD-152	B-215	5HK-D15
C14	2200							
C15	2200							
C16	10 NPO		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C17	10 NPO		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C18	3.9 N750							
C19	3.9 NPO				C10V4C			10TCC-V39
C20	6	Note 1						
C21	10 NPO		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C22	6	Note 1						
C23	130 N750		N750-SI 130	TCN-131	C10T13U	CCTN-121	CN7-312	10TCU-T12
C24	12 NPO		NPO-SI 12	TCZ-12	C10Q1C	CCTO-120	CNO-412	10TCC-Q12
C25	15 NPO		NPO-SI 15	TCZ-15	C10Q12C	CCTO-150	CNO-415	10TCC-Q15
C26	2200							
C27	2200							
C28	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C29	100 N750		N750-SI 100	TCN-100	C10T1U	CCTN-101	CN7-310	10TCU-T10
C30	6800		SI 6800	D6-682	BYA10D68	CCD-682	B-268	5HK-D68
C31	47 N750		N750-SI 47	TCN-47	C10Q47U	CCTN-470	CN7-447	10TCU-Q47
C32	4.7 N750		N750-SI 5.0	TCN-5	C10V5U	CCTN-050	CN7-547	10TCU-V50
C33	330 N750		N750-SI 330	TCN-330	C10T33U		CN7-333	10TCU-T33
C34	30	Note 1						
C35	30	Note 1						
C36	4700		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47
C37	18 NPO		NPO-SI 18	TCZ-18	C10Q18C	CCTO-180	CNO-418	10TCC-Q18
C38	15		SI 15	D6-150	L10Q15	CCD-150	GP415	10TS-Q15
C39	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10
C40	3.3 NPO		NPO-SI 3.3	TCZ-3R3	C10V33C	CCTO-3R3	CNO-533	10TCC-V33
C41	3000 5%				1R5D3	CM-20B-302J	MCE461	MS-23
C42	4700		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47
C43	4700		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47
C44	4700		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47

FIXED CAPACITORS (cont)

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C45	.001 400V		P488N-001	D6-102	CUB6D1	6DP-1-102	GEM-621	6TM-D1
C46	.0047 400V		P488N-0047	D6-472	CUB6D47	6DP-1-472	GEM-6247	6TM-D47
C47	.22 125V		P288N-22		CUB2P22	2DP-4-224	GEM-2022	2TM-P22
C48	.47 125V 10%		V84C2P47-10%		PM2P47	2DP-5-474	GEM-2047	2TM-P47
C49	.0082 125V		P684CM-0082	DD-822	DPMS6D82	6DP-2-822	GEM-16282	MB-D8
C50	.1 125V		P288N-1	DF-104	CUB2P1	2DP-3-104	GEM-201	2TM-P1
C51	4700		SI 4700	D6-472	BYA10D47M	CCD-472	B-247	5HK-D47
C52	.022 400V		P488N-022	DD-203	CUB4S22	4DP-2-223	GEM-4122	4TM-S22
C53	220 N750		N750-SI 220	TCN-220	C10T22U	CCTN-221	CN7-322	10TCU-T22
C54	6800		SI 6800	D6-682	BYA10D68	CCD-682	B-268	5HK-D68
C55	.0033 1300V		P1684CM-0033	DD30-332	CUB16D33	16DP-2-332	GEM-16233	MB-D33
C56	.0022 1300V		P1684CM-0022	DD30-222	CUB16D22	16DP-2-222	GEM-16222	MB-D22
C57	2200		SI 2200	D6-222	BYA10D22	CCD-222	B-222	5HK-D22
C58	10000		SI 10000	D6-103	BYA10S1	CCD-103	B-110	5HK-S10

Note 1. Nominal Value.

CONTROLS

ITEM No.	RATING RESISTANCE	RATING WATTS	REPLACEMENT DATA NORELCO PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg 400K Tap	½	916/GL400K +1M6	ABT-79				Volume
B	Shaft			AK-29				

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	1000Ω	
R3	180Ω	
R4	1meg	
R5	27K	
R6	1000Ω	
R7	1meg	
R8	2200Ω	
R9	33K 2W	
R10	47K	
R11	22K	
R12	100K	
R13	1.8meg	

ITEM No.	RATING	REMARKS
R14	270K	
R15	2200Ω	
R16	68K 2W	
R17	390Ω	
R18	47K	
R19	27K	
R20	6800Ω	
R21	68K	
R22	330Ω	
R23	10meg	
R24	220K	
R25	820K	

ITEM No.	RATING	REMARKS
R26	1000Ω	
R27	820Ω 2W	
R28	270Ω	
R29	330Ω	
R30	33Ω	
R31	1800Ω	
R32	150Ω	
R33	470K	
R34	100K	
R35	1000Ω 5W	IRC#PW5-1KΩ
R36	360Ω	
R37	360Ω	Note 1

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA NORELCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	NOTES
L1	FM Ant. Trans.					
L2	RF Choke					
L3	FM RF Coil					
L4	FM Osc. Coil					
L5	1st FM IF Trans.					
L6	2nd FM IF Trans.	A312783				
L7	SW Ant. Trans.	921/24-52M				
L8	RF Choke	A380361				
L9	Loopstick	922/01				
L10	IF Trap Trans.	A311970				
L11	SW Osc. Coil	923/24-52M				
L12	BC Osc. Coil	A312599				
L13	3rd FM IF Trans.	926/10, 7				

PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF) (cont)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		NORELCO PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L14	1st AM IF Trans.	925/452-2				
L15	Ratio Det.	926/10, 7 RD-2				
L16	2nd AM IF Trans.	925/452-2				

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	NORELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V @ .38A (On 127V Tap)	400VCT @ .060A	6.3V @ 2.5A	919/70MA					

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI. 1	SEC. 1	NORELCO PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5400Ω	25Ω	A315388					
	PRI. 2	SEC. 2						
	100Ω	3-4Ω						

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	NORELCO PART No.	QUAM PART No.	
SP1	4"x 6"	PM	3-4Ω	AD3460M	46A1	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	NORELCO PART No.	REPLACEMENT DATA	
K1	AM Det. RF Filter	100mmf, 100mmf, 47K		Aerovox	PA-97
				Centralab	PC-50
				Cornell-Dubilier	111TM1
				Sprague	D-1

FUSES

ITEM No.	TYPE	RATING	REPLACEMENT DATA					
			NORELCO PART No.		LITTELFUSE PART No.		BUSS PART No.	
			FUSE	HOLDER	FUSE	HOLDER	FUSE	HOLDER
M1	Rose Metal Link							

MISCELLANEOUS

ITEM No.	PART NAME	NORELCO PART No.	NOTES
M2	Tuner	4900198	FM, Complete
M3	Tuning Cap.		AM, 2 Gang
M4	Switch		Function (Pushbutton Type)
M5	Switch		Tone (Pushbutton Type)
M6	Switch		Input Voltage Selector

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

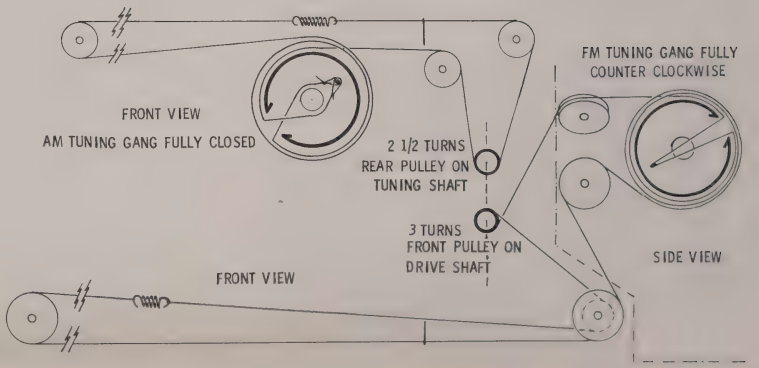
NAME	PART NO.	DESCRIPTION
Knob	P407763/417	Tuning, FM
Knob	P407764/417	Volume
Knob	A377270	AM Tuning, Volume
Pushbutton	P542018/139	On-Off, Phono, SW, MW, FM
Pushbutton	P542023/139	Tone
Cabinet	A377981	

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

DIAL CORD STRINGING


FM TUNING GANG FULLY COUNTER CLOCKWISE
FRONT VIEW
AM TUNING GANG FULLY CLOSED
2 1/2 TURNS REAR PULLEY ON TUNING SHAFT
3 TURNS FRONT PULLEY ON DRIVE SHAFT
SIDE VIEW
FRONT VIEW

PHOTOFACT® Folder

OLYMPIC CONTINENTAL MODEL GBS384

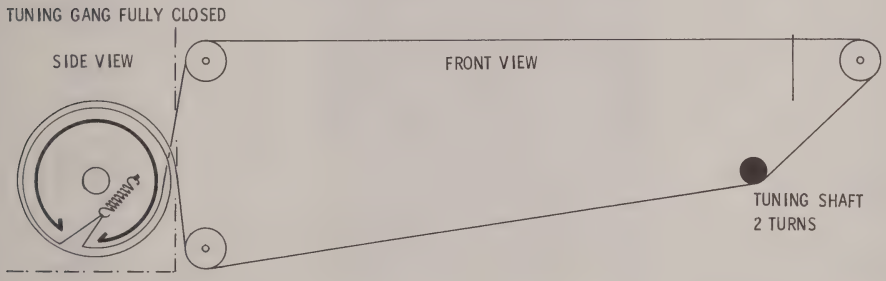
OLYMPIC CONTINENTAL
MODEL GBS384

OLYMPIC CONTINENTAL
MODEL GBS384

TRADE NAME	Olympic Continental Model GBS384		
MANUFACTURER	Olympic, A Div. of the Siegler Corp., 34-01 38th Ave., Long Island City 1, N. Y.		
TYPE SET	AC Operated 8 Tube FM-BC-SW Receiver With 4 Speed Automatic Record Changer		
POWER SUPPLY	105 – 120 Volts AC, 60 Cycles	RATING	59 Watts, .53 Amp. @ 117 Volts AC (Less Motor)
TUNING RANGES – BROADCAST	540 – 1620KC	FREQ. MOD.	88 – 108MC SHORT WAVE 6-18MC

FOR SERVICE INFORMATION ON RECORD CHANGER PART #RX26202-2 – SEE MONARCH UA12 – PHOTOFACT SET 465 FOLDER 6

DIAL CORD STRINGING



HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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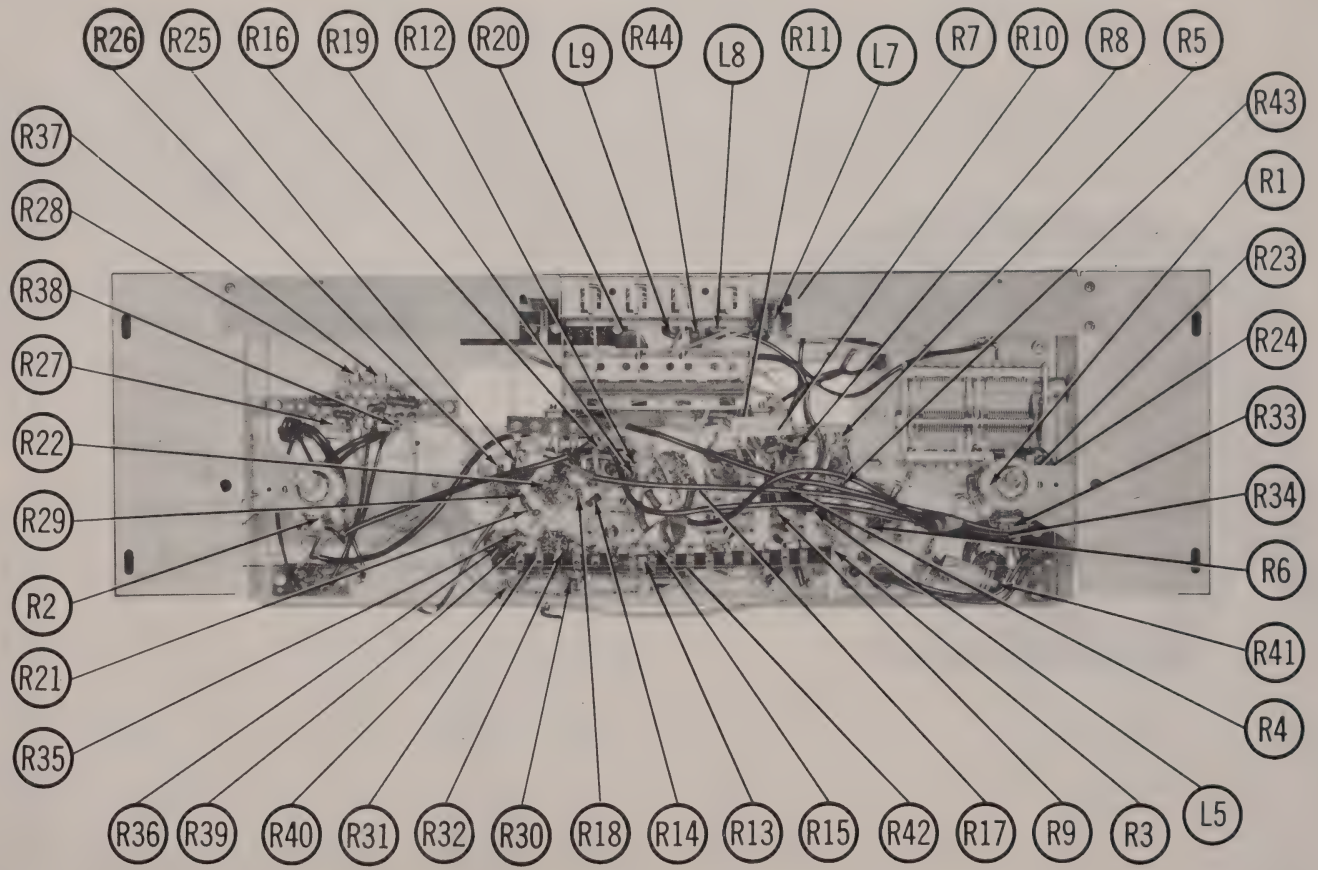
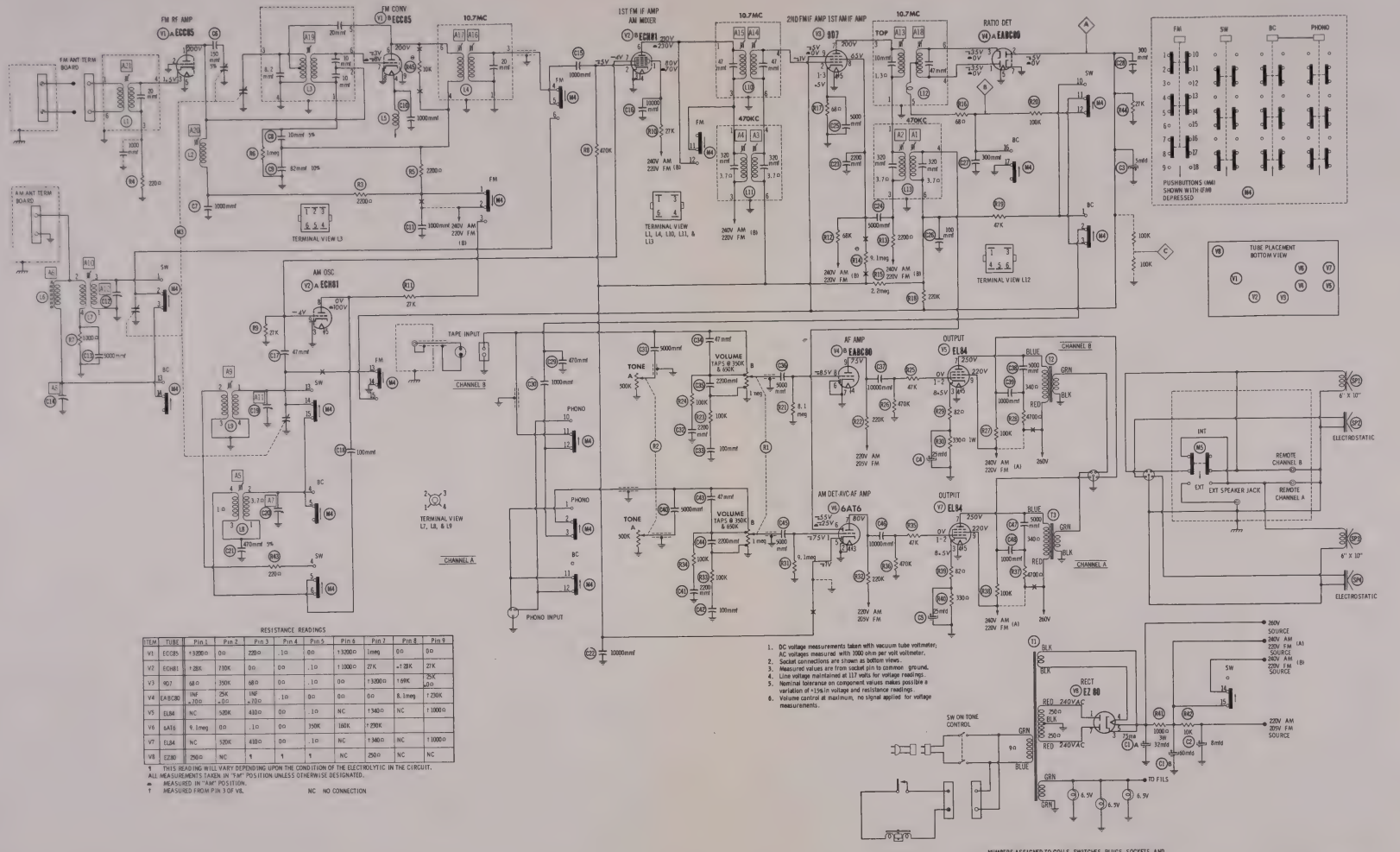
SET 513 FOLDER 11



CHASSIS BOTTOM VIEW - RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	ECC85	†3200Ω	0.0	220Ω	.10	0.0	†3200Ω	1meg	0.0	0.0
V2	ECH81	†28K	710K	0.0	0.0	.10	†1000Ω	27K	¶ 28K	27K
V3	9D7	68Ω	350K	68Ω	0.0	.10	0.0	†3200Ω	†69K	25K Ω
V4	EABC80	INF ∠70Ω	25K ∠0Ω	INF ∠70Ω	.10	0.0	0.0	0.0	8.1meg	†250K
V5	EL84	NC	580K	430Ω	0.0	.10	NC	†340Ω	NC	†1000Ω
V6	6AT6	9.1meg	0.0	.10	0.0	350K	160K	†250K		
V7	EL84	NC	520K	410Ω	0.0	.10	NC	†340Ω	NC	†1000Ω
V8	EZ80	250Ω	NC	¶	¶	¶	NC	250Ω	NC	NC

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
ALL MEASUREMENTS TAKEN IN "FM" POSITION UNLESS OTHERWISE DESIGNATED.
∠ MEASURED IN "AM" POSITION.
† MEASURED FROM PIN 3 OF V8. NC NO CONNECTION

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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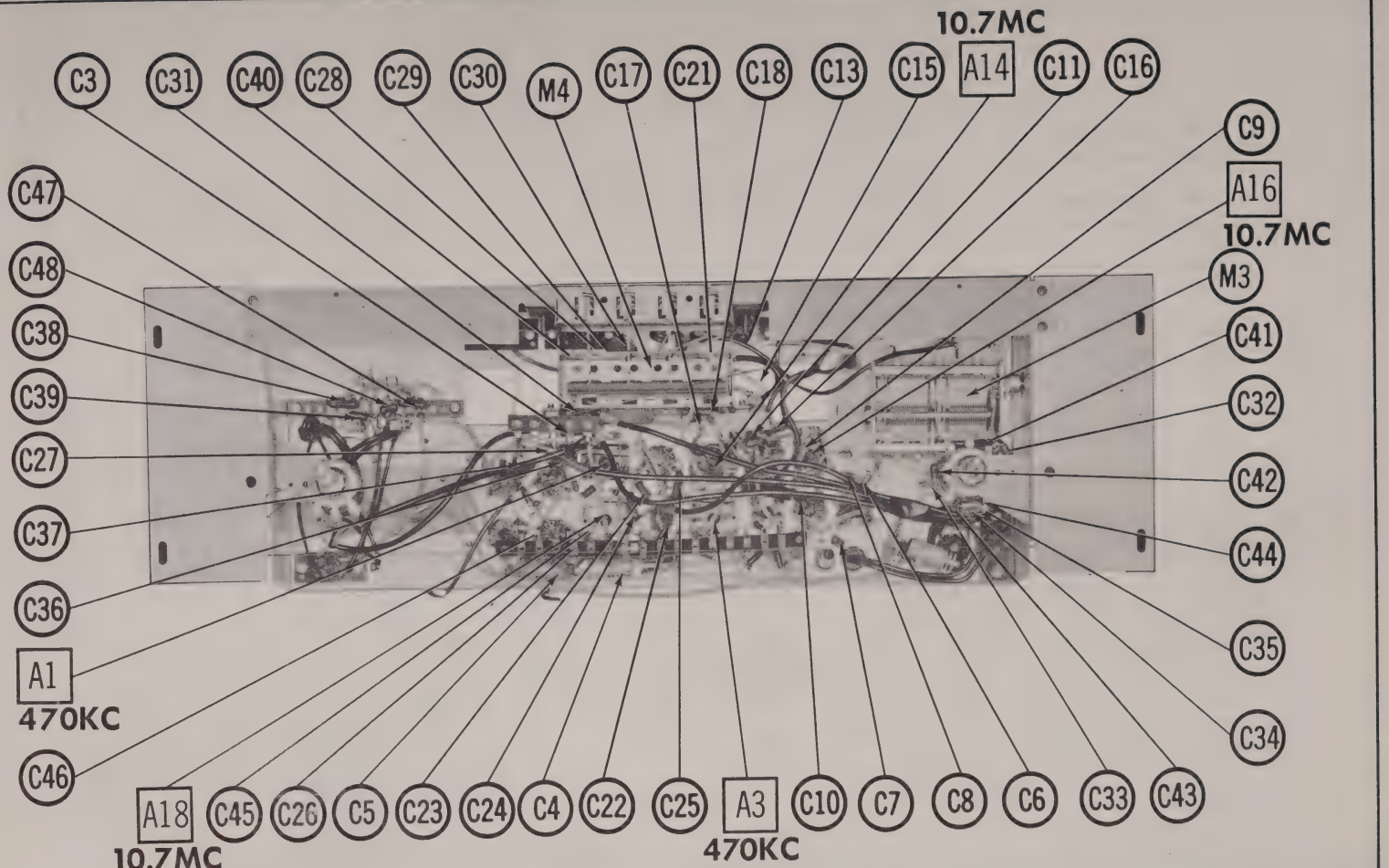
OLYMPIC CONTINENTAL MODEL GBS384



CHASSIS BOTTOM VIEW - ALIGNMENT, CAPACITOR & MISC. IDENT.

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Loudness control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools:
A1, A2, A3, A4, A5, A9, A10, A22.....GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A7, A8, A11, A12.....GENERAL CEMENT #5000, 5003, 8276, 8290
WALSCO #2512, 2515, 2522, 2523, 2525, 2537
A13 thru A19 and A21.....GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .05mfd to pin 2 (grid) of AM Mixer. Low side to chassis.	470KC (400% Mod.)	(BC) 600KC	Across voice coil.	A1, A2, A3, A4	Adjust for maximum output.
2.	Loop	600KC	"	"	A5, A6	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	1500KC	(BC) 1500KC	"	A7, A8	"
4.	Across AM Antenna terminals with 400Ω in high side.	6.5MC	(SW) 6.5MC	"	A9, A10	Adjust for maximum output.
5.	"	18MC	(SW) 18MC	"	A11, A12	"

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

Connect two matched 100K (± 1%) resistors in series from point ⟨A⟩ to chassis. The junction of these two resistors is alignment point ⟨C⟩ as shown on the schematic.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
6.	Two turn loop around FM RF Amp.	10.7MC (Unmod.)	(FM) 98MC	DC probe to point ⟨A⟩. Common to chassis.	A13, A14, A15, A16, A17	Adjust for maximum deflection.
7.	"	"	"	DC probe to point ⟨B⟩. Common to point ⟨C⟩.	A18	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60% modulation and 450KC sweep. Use 120% sawtooth voltage in scope for horizontal deflection.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
6.	Two turn loop around FM RF Amp.	10.7MC (450KC Swp)	(FM) 98MC	Vert. Amp. to point ⟨A⟩. Low side to chassis.	A13, A14, A15, A16, A17	Disconnect stabilizing Capacitor C3. Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown. Reconnect C3.
7	"	"	"	Vert. Amp. to point ⟨B⟩. Low side to chassis.	A18	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A13 for maximum amplitude and straightness of cross-over lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
8.	Across FM antenna terminals with 300Ω in high side.	98MC (Unmod.)	(FM) 98MC	DC probe to point ⟨A⟩. Common to chassis.	A19, A20, A21	Adjust for maximum deflection.

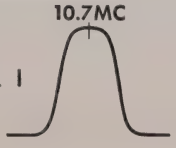


FIG. 1

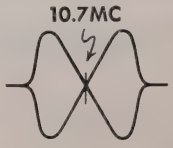


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •

ITEM No.	USE	TYPE	ITEM No.	USE	TYPE
V1	FM RF Amplifier-FM Converter	ECC85	V5	Channel B Output	E184
			V6	AM Detector-AVC-Channel A AF Amp.	6AT6
V2	1st FM IF Amplifier-AM Mixer-AM Osc.	ECH81			
V3	2nd FM-1st AM IF Amp.	9D7	V7	Channel A Output	EL84
V4	Ratio Detector-Channel B AF Amp.	EABC80	V8	Rectifier	EZ80

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	OLYMPIC PART No.	REPLACEMENT DATA AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	32	300	COE30445	AFH1-39	XE80254	WP227, 35	TMS-1510	TVL-1617	
C1B	60	300		PRS1360			TD-460-350	TVA-1613	
C2	8	275	COE30444	AFH1-32	A0360	FP1T1	TMS-1300	TVL-1605	
C3	5	50	COE25270	PRS1310	BBR5-50	TC301	TD-5-50	TVA-1203	
C4	25	25	COE30446	PRS1260	BBR25-25	TC26	TD-25-25	TVA-1205	
C5	25	25	COE30446	PRS1260	BBR25-25	TC26	TD-25-25	TVA-1205	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C6	150 5%		SI 1000	TCZ-150	22R5T15	CM-19B-151J	CNO-315	10TCC-T15
C7	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C8	10 5%		NPO-SI 10	TCZ-10	C10Q1C	CCTO-100	CNO-410	10TCC-Q10
C9	82 10%		NPO-SI 82	D6-820	L10Q82	CCD-820	GP492	10TS-Q82
C10	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C11	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C12								
C13	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C14								
C15	1000		SI 1000	D6-102	BYA10D5	CCD-102	B-210	5HK-D10
C16	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C17	47		SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C18	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C19								
C20								
C21	470 5%				5R5T47	CM-19B-471J	MC.T244	MS-347
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	2200		SI 2200	D6-222	BYA10D22	CCD-222	B-222	5HK-D22
C24	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C25	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C26	100		SI 100	D6-101	L10T10	CCD-101	GP310	10TS-T10
C27	300		SI 300	D6-301	L10T3	CCD-301	GP330	10TS-T30
C28	300		SI 300	D6-301	L10T3	CCD-301	GP330	10TS-T30
C29	470		SI 470	D6-471	BYA10T47	CCD-471	B-347	10TS-T47
C30	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C31	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C32	2200		SI 2200	D6-222	BYA10D22	CCD-222	B-222	5HK-D22
C33	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C34	47		SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C35	2200		SI 2200	D6-222	BYA10D22	CCD-222	B-222	5HK-D22
C36	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C37	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C38	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C39	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10
C40	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C41	2200		SI 2200	D6-222	BYA10D22	CCD-222	B-222	5HK-D22
C42	100		SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C43	47		SI 47	D6-470	L10Q47	CCD-470	GP447	10TS-Q47
C44	2200		SI 2200	D6-222	BYA10D22	CCD-222	B-222	5HK-D22
C45	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C46	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C47	5000		SI 5000	D6-502	BYA10D5	CCD-502	B-250	5HK-D50
C48	1000		SI 1000	D6-102	BYA10D1	CCD-102	B-210	5HK-D10

CHASSIS—TOP VIEW

PARTS LIST AND DESCRIPTIONS (Continued)

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1A	1meg *	1/2	PTE30440					Balance, Channel B
B	1meg *	1/2						Loudness, Channel A
R2A	500K	1/2	PTE30441	B-60	AD47-500K-Z		FA55A	Tone, Channel A
B	500K	1/2		SR-60	Not Req.		RU55A	Tone, Channel B
C	Shaft			Not Req.	RS-2		CS3500	
D	Switch			KR-2	SWE-20		US42	Power On-Off

* Taps ② 350K & 650K.

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	2200Ω	
R4	220Ω	
R5	2200Ω	
R6	1meg	
R7	1000Ω	
R8	470K	
R9	27K	
R10	27K	
R11	27K	
R12	68K	
R13	2200Ω	
R14	9.1meg	Note 1
R15	2.2meg	
R16	68Ω	

ITEM No.	RATING	REMARKS
R17	68Ω	
R18	220K	
R19	47K	
R20	100K	
R21	8.1meg	
R22	220K	
R23	100K	
R24	100K	
R25	47K	
R26	470K	
R27	100K	
R28	4700Ω	
R29	82Ω	
R30	330Ω 1W	

ITEM No.	RATING	REMARKS
R31	9.1meg	
R32	220K	
R33	100K	
R34	100K	
R35	47K	
R36	470K	
R37	4700Ω	
R38	100K	
R39	82Ω	
R40	330Ω	
R41	1000Ω 3W	IRC#PW5-1K
R42	10K	
R43	220Ω	
R44	27K	
R45	10K	Note 1

Note 1. Not used in some versions.

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		OLYMPIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	FM Ant. Trans.	TRE30416				
L2	FM RF Coil	CLE30052				
L3	FM Osc. Coil	CLE30417				
L4	1st FM IF Trans.	TRE25241				
L5	Fil. Choke (1.4uh)	TRE25239	BC-563	4604	RTC-8516	1.4uh
L6	Loopstick	LPE30418				
L7	SW Ant. Trans.	CLE25252				
L8	BC Osc. Coil	CLE25255				
L9	SW Osc. Coil	CLE25251				
L10	2nd FM IF Trans.	TRE25237				
L11	1st AM IF Trans.	TRE30419				
L12	Ratio Detector	TRE25238				
L13	2nd AM IF Trans.	TRE25240				

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V ② .53A	480VCT ② .075A	6.3V ② .6A	TRE30421		A-8092①			① Drill new mounting holes.
	SEC. 3	SEC. 4	SEC. 5						
	6.3V ② 3.5A								

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T2	5600Ω	3-4Ω	TRE30420	A-3019 ①	A-8092 ①	26S49 ①	S-5Z ①	① Drill new mounting hole.
T3	5600Ω	3-4Ω	TRE30420	A-3019 ①	A-8092 ①	26S49 ①	S-5Z ①	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	6"x10"	PM	3-4Ω	SKE25266		
SP2	Electrostatic			SKE30433		
SP3	6"x10"	PM	3-4Ω	SKE25266		
SP4	Electrostatic			SKE30433		

PHONO CARTRIDGE

ITEM No.	REPLACEMENT DATA								
	OLYMPIC PART No.	ASTATIC PART No.		ELECTRO-VOICE PART No.		JENSEN PART No.		SONOTONE PART No.	
		CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE	CARTRIDGE	NEEDLE
M1		76TS-TB		26S	S1-1 S3-3	49		8TA4-S	N-8TA-S

PHONO NEEDLE

(FOR REPLACEMENT IN ORIGINAL EQUIPMENT CARTRIDGE)

ITEM No.	REPLACEMENT DATA		REMARKS
	OLYMPIC PART No.	JENSEN PART No.	
M2		CRA-55 † or CRA-55D ♦ & CRA-55LP † or CRA-55LPD ♦	† Jewel ♦ Diamond

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M3	Tuning Cap.	CVE30443	4 Gang (AM Sections: Ant. 10-550mmf, Osc. 12-470mmf)
M4	Switch	SWE30426	Function Selector (Pushbutton Type)
M5	Switch		Ext.-Int. Stereo (DPDT, Slide Type)

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

NAME	PART NO.	DESCRIPTION
Dial Glass	DLE30438	
Dial Pointer	POE30439	
Knob	KNE30434	Large (Not Keyed)
Knob	KNE25248	Small (1/4" Shaft Hole)
Knob	KNE25250	Large (Keyed)
Knob	KNE25249	Small (3/16" Shaft Hole)

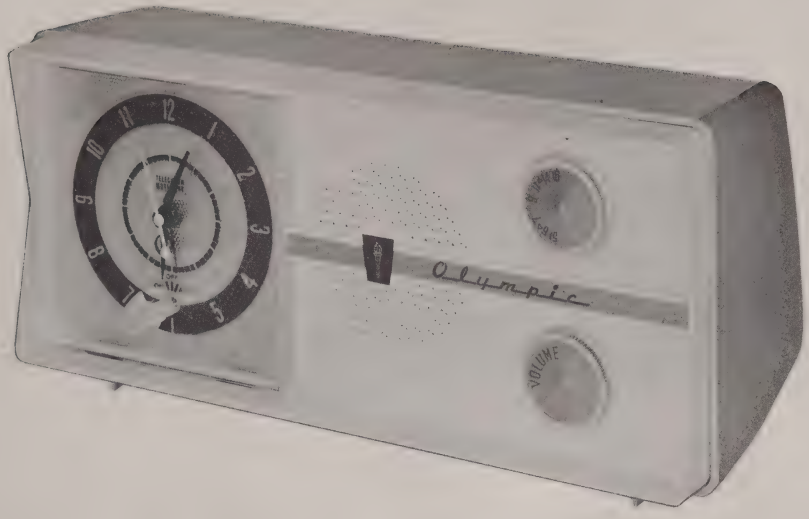
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)
Low-Loss Shielded Lead (Interconnecting)	Use BELDEN No. 8401
Phono Pick-up Arm Cable	Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder

OLYMPIC
MODEL 466

OLYMPIC
MODEL 466



OLYMPIC
MODEL 466

TRADE NAME	Olympic Model 466
MANUFACTURER	Olympic, A Div. of The Siegler Corp., 34-01 38th Ave., Long Island City 1, N. Y.
TYPE SET	AC Operated 4 Tube AM Receiver With Electric Clock
POWER SUPPLY	110 – 120 Volts AC, 60 Cycles
TUNING RANGE—BROADCAST	540 – 1600KC RATING 27 Watts, .25 Amp. @117 Volts AC (Less Clock)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use isolation transformer, if available. If not, connect a .1mfd capacitor in series with low side of signal generator. Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2... GENERAL CEMENT #8282, 8606, 8606-L, 9295, 9440
WALSCO #2526, 2543, 2544, 2545
A3, A4... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	High side thru .1mfd to antenna stator lug of tuning gang. Low side to chassis.	455KC (400~ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2	Adjust for maximum output.
2.	"	1650KC	"	"	A3	"
3.	Loop	1500KC	1500KC Signal.	"	A4	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output. Repeat Steps 2 and 3.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

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KG207

SET 513 FOLDER 12

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (◆ GENERAL ELECTRIC ◆ RAYTHEON ◆ SYLVANIA ◆)
V1	Converter	12AU6
V2	Det. -AF Amp.	12AV6
V3	Output	50C5
V4	Rectifier	35W4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA OLYMPIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	60	150	COH30259	PRS3700	BBRT84215	TCT3119	TDLT-7	TVL-3443	
B	30	150							
C	10	150							

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	47 N220					*		10TCR-Q47
C3	220		DI-220	DD-221	L10T22	CCD-221	B-322	10TS-T22
C4	.01 600V		P688N-01	D6-103	CUB6S1	6DP-2-103	GEM-611	6TM-S10
C5	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C6	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S50
C7	.1 400V		P488N-1	DF-104	CUB4P1	4DP-3-104	GEM-401	4TM-P10

* Not normally in distributor's stock. Available thru distributor on order to manufacturer.

CONTROLS

ITEM No.	RATING RESIST-ANCE	RATING WATTS	REPLACEMENT DATA OLYMPIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1A	2meg	½	PTH30260	B-76	A47-2meg-Z	Q13-139	U55	Volume
B	Shaft			Not Req.	FS-3	Not Req.	Not Req.	

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	2.2meg	
R3	6.8meg	

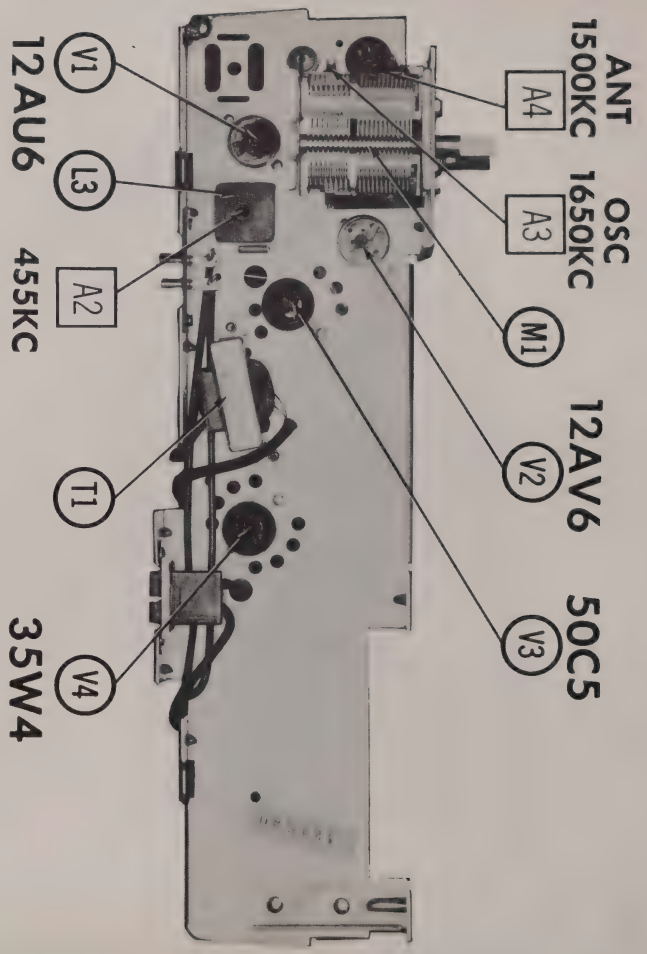
ITEM No.	RATING	REMARKS
R4	150Ω	
R5	2200Ω	

ITEM No.	RATING	REMARKS
R6	68Ω 2W	

COMPONENT COMBINATIONS

ITEM No.	USE	DESCRIPTION	OLYMPIC PART No.	REPLACEMENT DATA	
K1	Audio Coupling	250mmf, 5000mmf, 250K, 470K	PPH30257	Aerovox	PA-112-2
				Centralab	PC-71
				Cornell-Dubilier	112TM2
				Sprague	T-4

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		OLYMPIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1 L2 L3	Loopstick Osc. Coil IF Transformer	LPH30261 CLH30262 TRH30246	BC-419	2004 67-OSC 12-C2	RTC-8633	

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	OLYMPIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	2500Ω	3-4Ω	TRH30263	A-3025	A-3332	24S53	S-12X	

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	OLYMPIC PART No.	QUAM PART No.	
SP1	4"	PM	3-4Ω	SKH30264	4A07	

MISCELLANEOUS

ITEM No.	PART NAME	OLYMPIC PART No.	NOTES
M1 M2	Tuning Cap. Clock	COH30238 PPH30249	2 Gang (Ant. 14-356mmf, Osc. 15-145mmf) Includes Switch

CABINETS & CABINET PARTS

(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

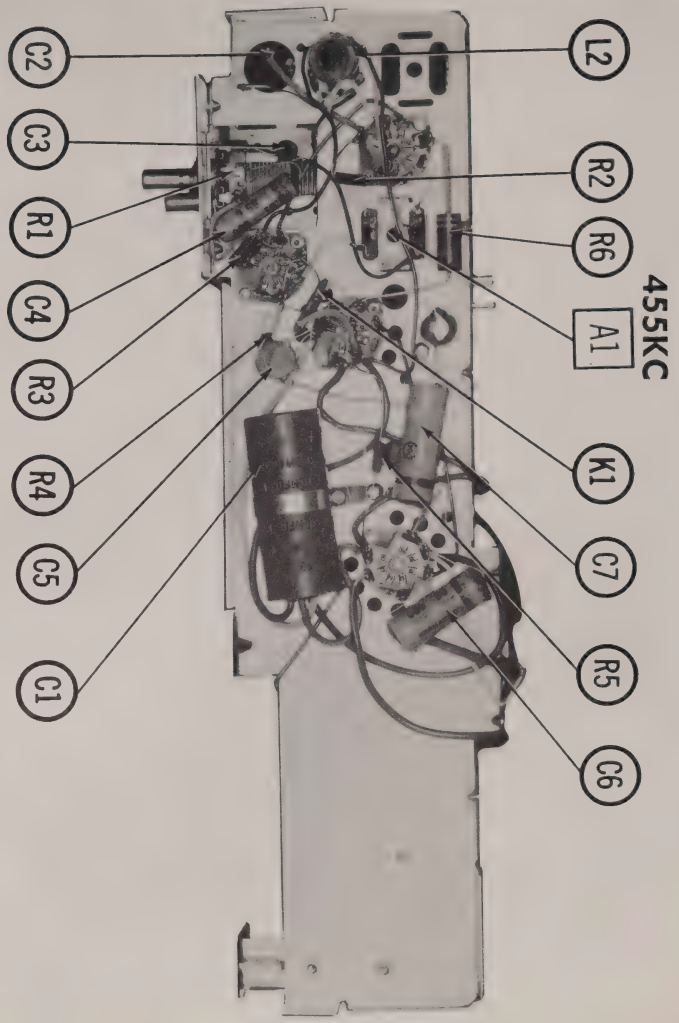
NAME	PART NO.	DESCRIPTION
Knob	KNH30265	Tuning
Knob	KNH30266	Volume
Knob	KNH30250	Clock
Dial	PPH30270	Clock
Crystal	PPH30307	Clock
Cabinet	CAH30267	Shell
Panel	PPH30268	Front, White

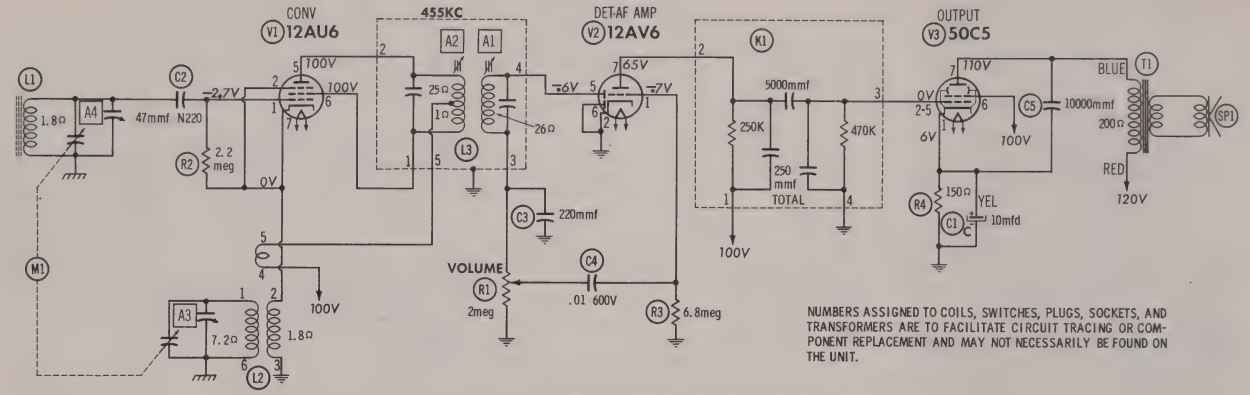
WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord (Interlock Type) ..... Use BELDEN No. 8874

CHASSIS—BOTTOM VIEW





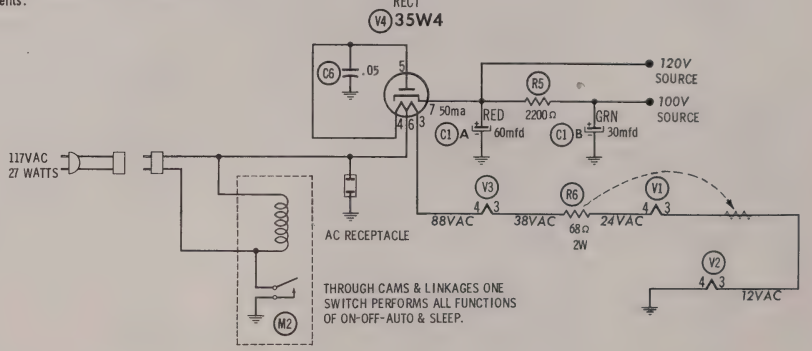
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7
V1	12AU6	2.2meg	1.8Ω	15Ω	30Ω	†2200Ω	†2200Ω	1.8Ω
V2	12AV6	6.8meg	0Ω	15Ω	0Ω	2meg	0Ω	†250K
V3	50C5	150Ω	470K	98Ω	155Ω	NC	†2200Ω	†200Ω
V4	35W4	TP	TP	155Ω	205Ω	205Ω	200Ω	¶

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
† MEASURED FROM PIN 7 OF V4. NC NO CONNECTION TP TIE POINT



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OLYMPIC MODEL 466

PHOTOFACT® Folder

REALISTIC
MODEL T-5

REALISTIC
MODEL T-5

REALISTIC
MODEL T-5

TRADE NAME	Realistic Model T-5		
SUPPLIER	Radio Shack Corp., 730 Commonwealth Ave., Boston 17, Mass.		
TYPE SET	AC Operated 10 Tube FM-AM Tuner		
POWER SUPPLY	110 — 120 Volts AC, 50-60 Cycles	RATING	38 Watts, .34 Amp. @117 Volts AC
TUNING RANGE—BROADCAST	520 — 1650KC	FREQ. MOD.	88- 108MC

SET 513 FOLDER 13

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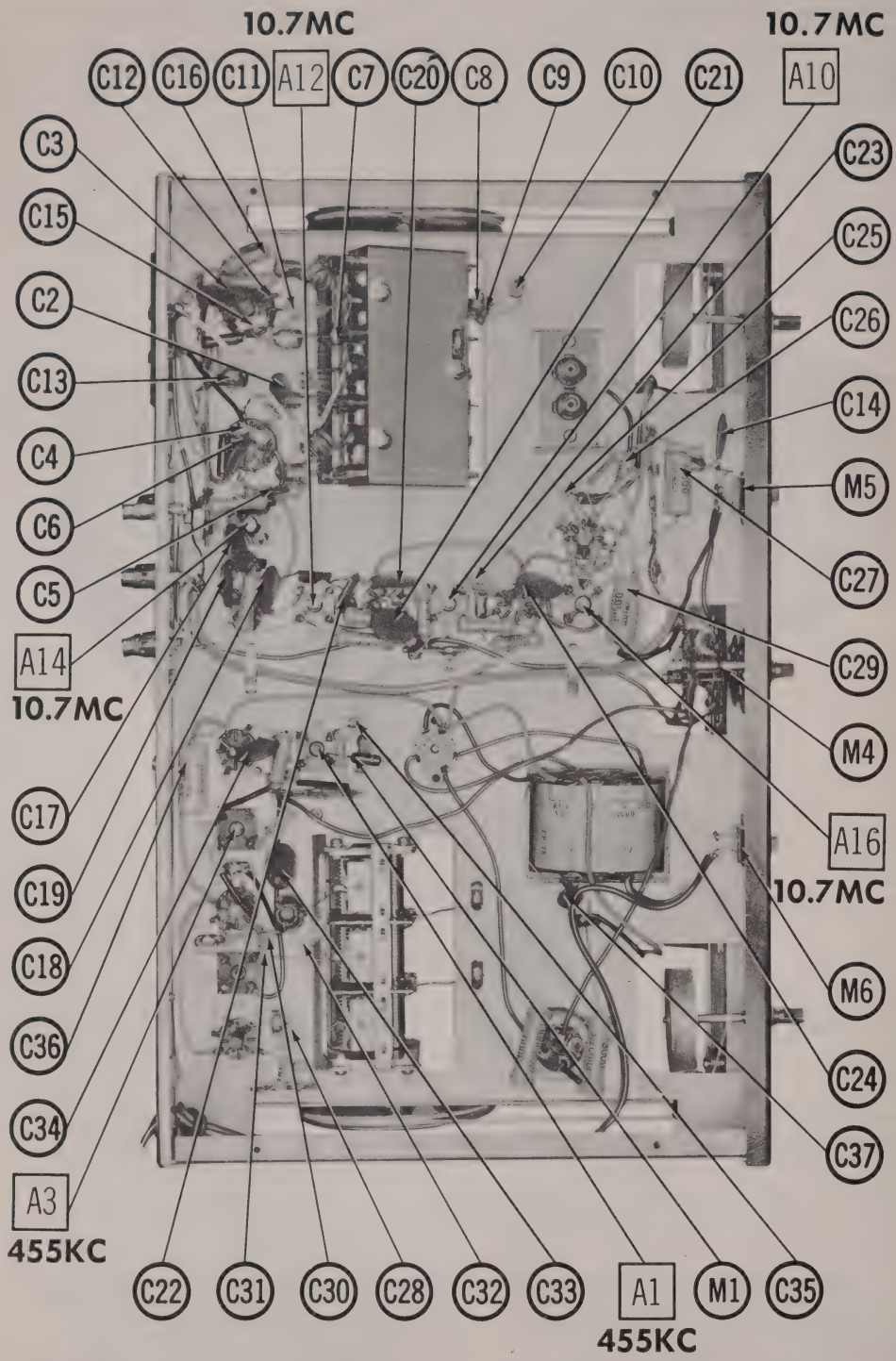
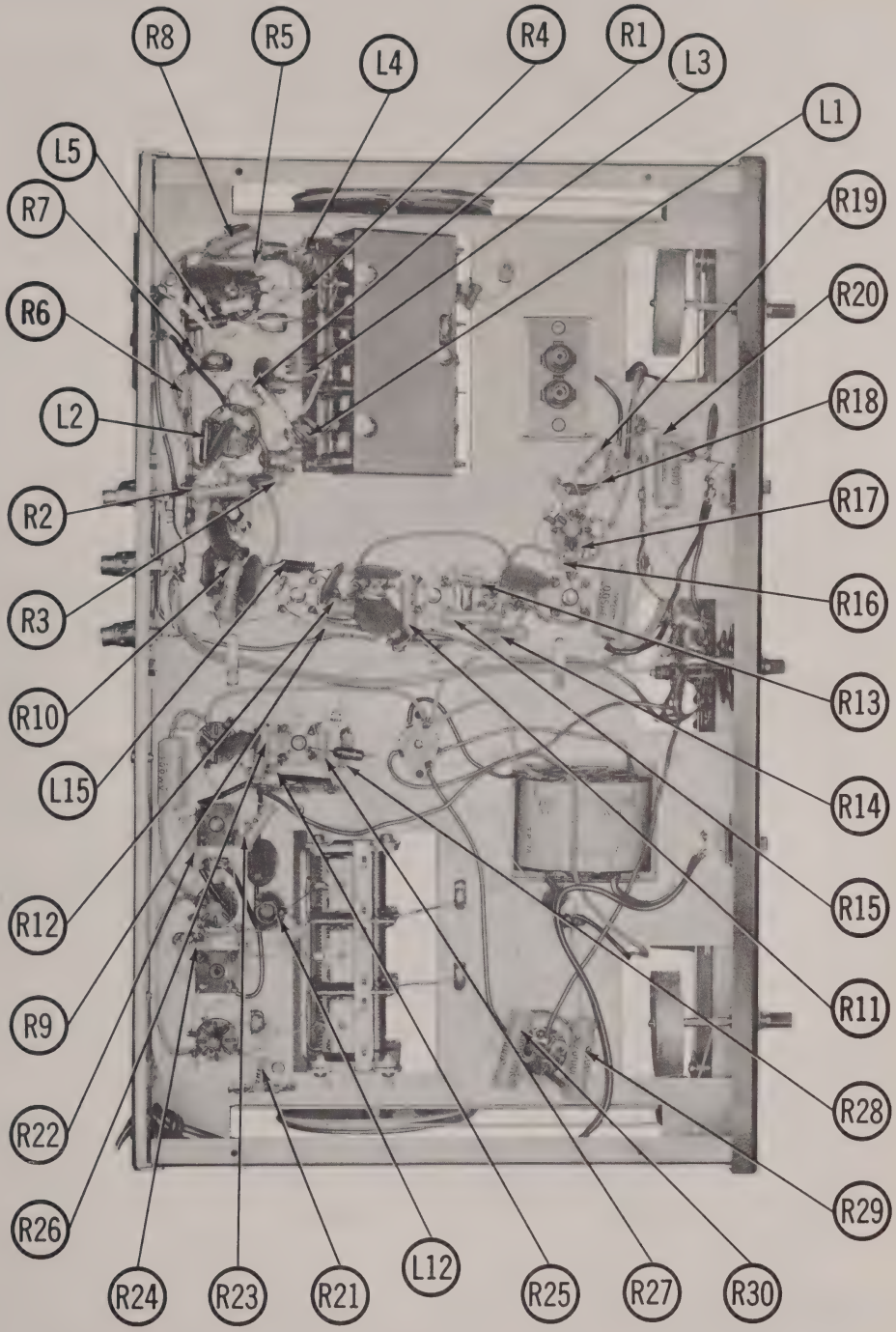
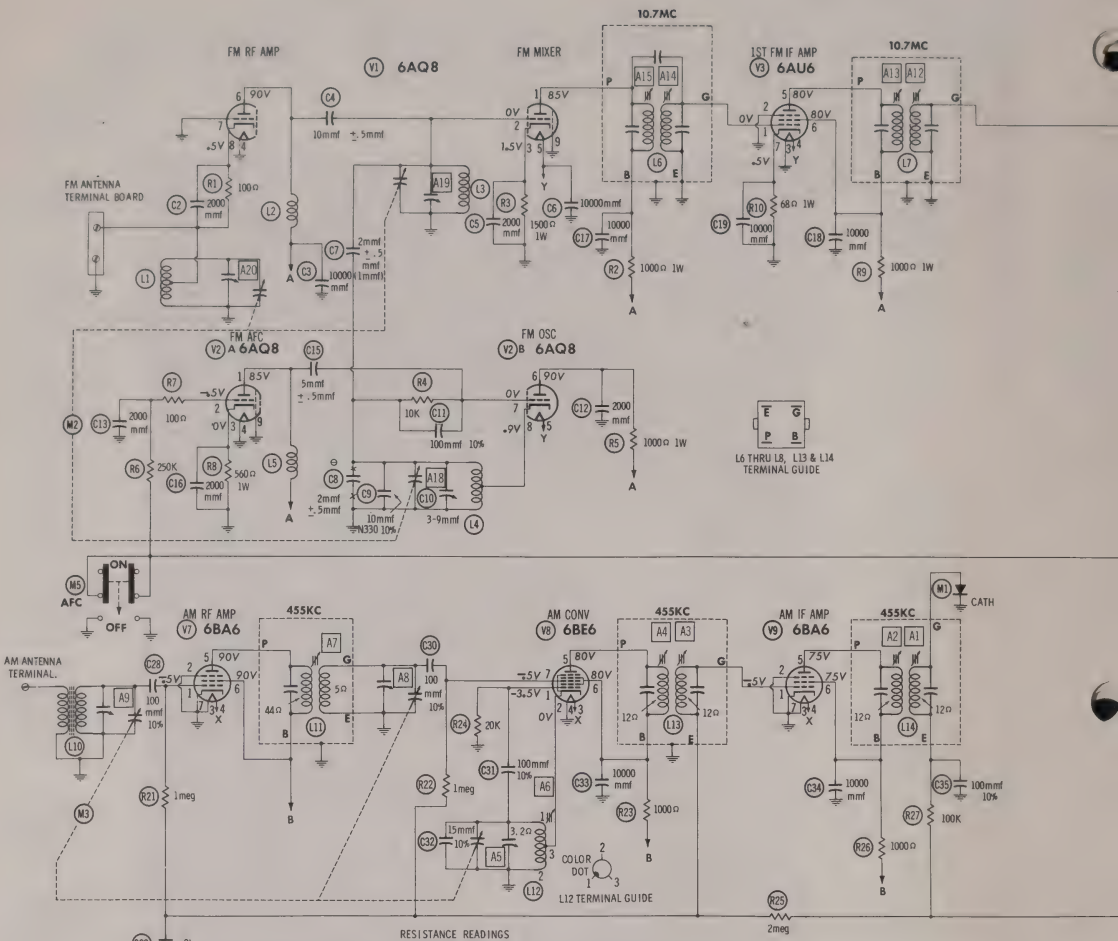


CHASSIS BOTTOM VIEW – ALIGNMENT, CAPACITOR & MISC. IDENT.



CHASSIS BOTTOM VIEW — RESISTOR & INDUCTOR IDENT.



RESISTANCE READINGS

ITEM	TUBE	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V1	6AQ8	†1600Ω	0Ω	1500Ω	0Ω	.1Ω	†600Ω	0Ω	100Ω	0Ω
V2	6AQ8	†600Ω	250K ■3.5meg	560Ω	0Ω	.1Ω	†1600Ω	10K		
V3	6AU6	0Ω	0Ω	0Ω	.1Ω	†1600Ω	†1600Ω	68Ω		
V4	6AU6	0Ω	0Ω	0Ω	.1Ω	†1600Ω	†1600Ω	68Ω		
V5	6AU6	50K	0Ω	0Ω	.1Ω	†22K	†22K	0Ω		
V6	6AL5	200K	100K	.1Ω	0Ω	0Ω	0Ω	100K		
V7	6BA6	3meg	0Ω	0Ω	.1Ω	†600Ω	†600Ω	0Ω		
V8	6BE6	20K	1.1Ω	.1Ω	0Ω	†1600Ω	†1600Ω	3meg		
V9	6BA6	2meg	0Ω	0Ω	.1Ω	†1600Ω	†1600Ω	0Ω		
V10	6X4	130Ω	NC	0Ω	.1Ω	NC	130Ω	¶		

¶ THIS READING WILL VARY DEPENDING UPON THE CONDITION OF THE ELECTROLYTIC IN THE CIRCUIT.
ALL MEASUREMENTS TAKEN IN "STEREO AM-FM" POSITION.
† MEASURED FROM PIN 7 OF V10.
■ TAKEN WITH AFC ON.
NC NO CONNECTION

A PHOTOFACT STANDARD NOTATION SCHEMATIC
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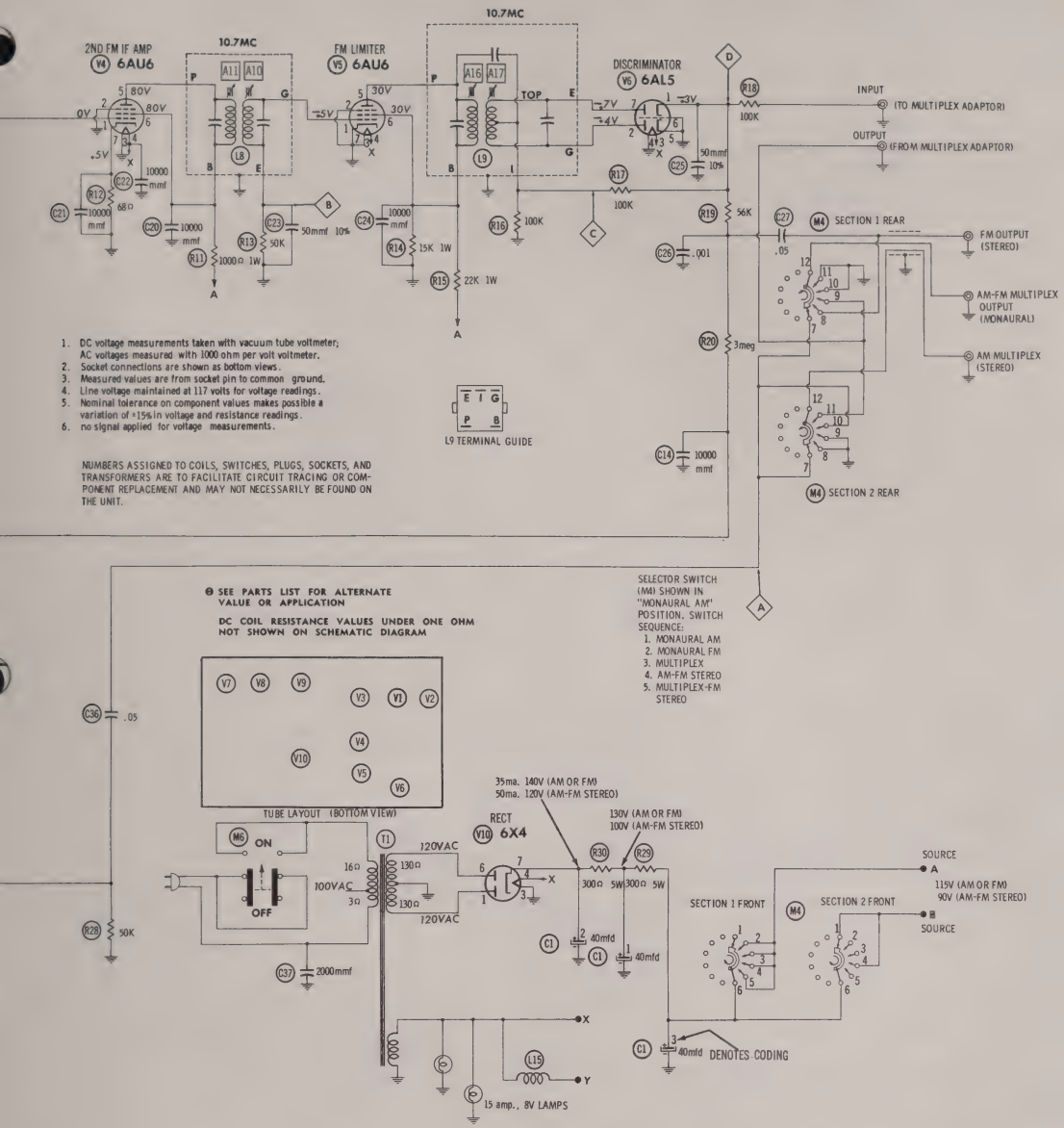

10.7MC
2ND FM IF AMP
V4 6AU6
10.7MC
FM LIMITER
V5 6AU6
10.7MC
DISCRIMINATOR
V6 6AL5
INPUT
(TO MULTIPLEX ADAPTOR)
OUTPUT
(FROM MULTIPLEX ADAPTOR)
SECTION 1 REAR
FM OUTPUT (STEREO)
AM-FM MULTIPLEX OUTPUT (MONAURAL)
AM MULTIPLEX (STEREO)
SECTION 2 REAR
1. DC voltage measurements taken with vacuum tube voltmeter; AC voltages measured with 1000 ohm per volt voltmeter.
2. Socket connections are shown as bottom views.
3. Measured values are from socket pin to common ground.
4. Line voltage maintained at 117 volts for voltage readings.
5. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
6. no signal applied for voltage measurements.
NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.
L9 TERMINAL GUIDE
SELECTOR SWITCH (M4) SHOWN IN "MONAURAL AM" POSITION. SWITCH SEQUENCE:
1. MONAURAL AM
2. MONAURAL FM
3. MULTIPLEX
4. AM-FM STEREO
5. MULTIPLEX-FM STEREO
⊖ SEE PARTS LIST FOR ALTERNATE VALUE OR APPLICATION
DC COIL RESISTANCE VALUES UNDER ONE OHM NOT SHOWN ON SCHEMATIC DIAGRAM
TUBE LAYOUT (BOTTOM VIEW)
35ma. 140V (AM OR FM)
50ma. 120V (AM-FM STEREO)
RECT V10 6X4
130V (AM OR FM)
100V (AM-FM STEREO)
120VAC
100VAC
ON
OFF
SECTION 1 FRONT
SECTION 2 FRONT
SOURCE A
115V (AM OR FM)
90V (AM-FM STEREO)
SOURCE B
40mfd
DENOTES CODING
15 amp., 8V LAMPS

REALISTIC
MODEL T-5

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Use only enough generator output to provide a usable pattern on scope.

Suggested Alignment Tools: A1 thru A4, A6, A7, A10 thru A17. . .GENERAL CEMENT #8721, 8722
WALSCO #2519
A5, A8, A9, A18 thru A20..... GENERAL CEMENT #5004, 5008, 5009
WALSCO #2520

AM ALIGNMENT—SELECTOR IN AM POSITION

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
1.	High side thru .1mfd to pin 7 (grid) of AM Converter. Low side to chassis.	455KC (400∿ Mod.)	(AM) Tuning gang fully open.	AC probe to point (A). Common to chassis.	A1, A2, A3, A4	Adjust for maximum deflection.
2.	Loop	1600KC	1600KC	"	A5	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
3.	"	600KC	600KC	"	A6, A7	"
4.	"	1400KC	1400KC Signal.	"	A8, A9	Adjust for maximum deflection while rocking tuning gang.

FM IF ALIGNMENT USING AM SIGNAL GENERATOR AND VTVM—SELECTOR IN FM POSITION

AFC Off

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
5.	High side thru .01mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (Unmod.)	(FM) Point of non-interference.	DC probe to point (B). Common to chassis.	A10, A11 A12, A13 A14, A15	Adjust for maximum deflection.
6.	"	"	"	DC probe thru 1meg to point (C). Common to chassis.	A16	"
7.	"	"	"	DC probe to point (D). Common to chassis.	A17	Adjust for zero reading. A positive and negative reading will be obtained on either side of the correct setting.

FM IF ALIGNMENT USING FM SIGNAL GENERATOR AND OSCILLOSCOPE—SELECTOR IN FM POSITION

Use frequency modulated signal with 60∿ modulation and 450KC sweep. Use 120∿ sawtooth voltage in scope for horizontal deflection.
AFC Off.

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT SCOPE	ADJUST	REMARKS
5.	High side thru .01mfd to pin 2 (grid) of FM Mixer. Low side to chassis.	10.7MC (450KC Swp)	(FM) Point of non-interference.	Vert. Amp. to point (B). Low side to chassis.	A10, A11, A12, A13, A14, A15	Adjust for maximum gain and symmetry of response similar to Fig. 1 with markers as shown.
6.	"	"	"	Vert. Amp. thru 27K to point (C). Low side to chassis.	A16	"
7.	"	"	"	Vert. Amp. to point (D). Low side to chassis.	A17	Adjust to place marker at the center of crossover lines similar to Fig. 2. SLIGHTLY retouch A16 for maximum amplitude and straightness of crossover lines.

FM RF ALIGNMENT—SELECTOR IN FM POSITION

AFC Off

	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	CONNECT VTVM	ADJUST	REMARKS
8.	Across FM antenna terminals.	108MC (Unmod.)	(FM) 108MC	DC probe to point (B). Common to chassis.	A18	Adjust for maximum output.
9.	"	96MC	96MC	"	A19, A20	"

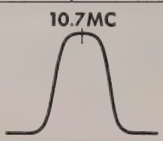


FIG. 1

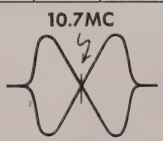


FIG. 2

PARTS LIST AND DESCRIPTIONS

TUBES

ITEM No.	USE	TYPE (• GENERAL ELECTRIC • RAYTHEON • SYLVANIA •)
V1	FM RF Amp. -FM Mixer	6AQ8
V2	FM Osc. FM AFC	6AQ8
V3	1st FM IF Amplifier	6AU6
V4	2nd FM IF Amplifier	6AU6
V5	FM Limiter	6AU6
V6	Discriminator	6AL5
V7	AM RF Amplifier	6BA6
V8	AM Converter	6BE6
V9	AM IF Amplifier	6BA6
V10	Rectifier	6X4

ELECTROLYTIC CAPACITORS

ITEM No.	RATING CAP.	RATING VOLT.	REPLACEMENT DATA REALISTIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1A	40	150		AFH3-10	C0090	FP311.5	TMT-3127	TVL-3440	
B	40	150							
C	40	150							

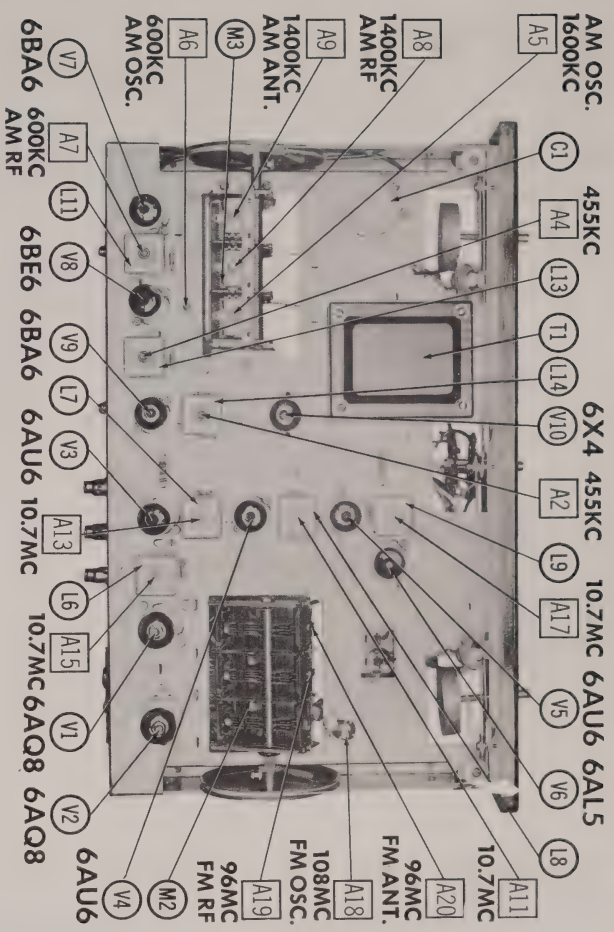
FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C2	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C3	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C4	10 +.5mmf		NPO-SI 10	TCZ-10	C10Q10C	CCTO-100	CNO-410	10TCC-Q10
C5	200Ω		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C6	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C7	2 ± .5mmf	(1) †	NPO-SI 2.2	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C8	2 ± .5mmf	Note 1	NPO-SI 2.2	TCZ-2R2	C10V2C	CCTO-2R2	CNO-522	10TCC-V22
C9	10 N330 10%					*		10TCS-Q10
C10	3-9			829-10				
C11	100 10%		NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C12	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C13	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	5 +.5mmf		NPO-SI 5.0	TCZ-4R7	C10V5C	CCTO-050	CNO-547	10TCC-V50
C16	200Ω		BPD-002	DD-202	BYA10D2	CCD-202	B-210	5HK-D20
C17	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C18	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C19	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C20	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C21	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C22	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C23	50 10%		NPO-SI 50	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C24	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C25	50 10%		NPO-SI 50	D6-500	L10Q5	CCD-500	GP450	10TS-Q50
C26	.001 400V		P488N-001	D6-102	CUB6D1	6DP-1-102	GEM-621	6TM-D1
C27	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C28	100 10%		NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C29	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C30	100 10%		NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C31	100 10%		NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C32	15 10%		NPO-SI 15	D6-150	L10Q15	CCD-150	GP415	10TS-Q15
C33	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C34	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C35	100 10%		NPO-SI 100	D6-101	L10T1	CCD-101	GP310	10TS-T10
C36	.05 400V		P488N-05	DD-503	CUB4S5	4DP-3-503	GEM-415	4TM-S5
C37	2000		BPD-002	DD-202	BYA10D2	CCD-202	B-220	5HK-D20

* Not normally found in distributor's stock. Available thru distributor on order to manufacturer.
Note 1. Not used in some versions.
† Alternate Value.

CHASSIS—TOP VIEW



PARTS LIST AND DESCRIPTIONS (Continued)

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R1	100Ω	
R2	1000Ω 1W	
R3	1500Ω 1W	
R4	10K	
R5	1000Ω 1W	
R6	250K	
R7	100Ω	
R8	560Ω 1W	
R9	1000Ω 1W	
R10	68Ω 1W	

ITEM No.	RATING	REMARKS
R11	1000Ω 1W	
R12	68Ω	
R13	50K	
R14	15K 1W	
R15	22K 1W	
R16	100K	
R17	100K	
R18	100K	
R19	56K	
R20	3meg	

ITEM No.	RATING	REMARKS
R21	1meg	
R22	1meg	
R23	1000Ω	
R24	20K	
R25	2meg	
R26	1000Ω	
R27	100K	
R28	50K	
R29	300Ω 5W	IRC#PW5-300Ω
R30	300Ω 5W	IRC#PW5-300Ω

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		REALISTIC PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	FM Ant. Trans.					
L2	RF Choke		BC-564	4608	RTC-8518	4uh
L3	FM RF Coil					
L4	FM Osc. Coil					
L5	RF Choke		BC-564	4608	RTC-8518	4uh
L6	1st FM IF Trans.		FM-254 †	1463 †	RTC-8599 †	† Fabricate Mounting
L7	2nd FM IF Trans.		FM-254 †	1463 †	RTC-8599 †	
L8	3rd FM IF Trans.		FM-254 †	1463 †	RTC-8599 †	
L9	Discriminator		FM-253 †	1464 †	RTC-8665 †	
L10	Loopstick		BC-419	705-A		
L11	AM RF Trans.					
L12	AM Osc. Coil		BC-393	70-OSC	RTC-8647	
L13	1st AM IF Trans.		BC-352 †	12-C1 †	RTC-8632 †	
L14	2nd AM IF Trans.		BC-353 †	12-C2 †	RTC-8633 †	
L15	Fil. Choke		BC-562	4604	RTC-8516	1.5uh

TRANSFORMER (POWER)

ITEM No.	RATING			REPLACEMENT DATA					NOTES
	PRI.	SEC. 1	SEC. 2	MUNTZ PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	117V ⓐ .34A Tap ⓐ 100V ⓑ Not used	240VCT ⓐ .050A	6.3V ⓐ 3.5A	PT 78					

SIGNAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA				NOTES
		REALISTIC PART No.	GENERAL ELECTRIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
M1				1N60	1N60	AM Detector

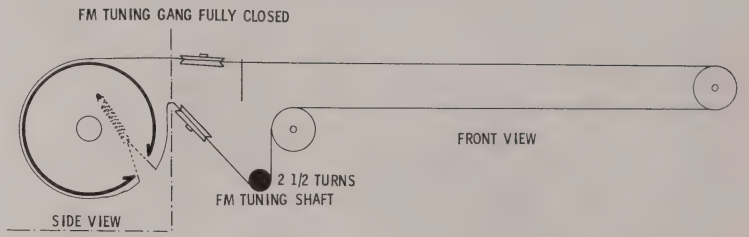
MISCELLANEOUS

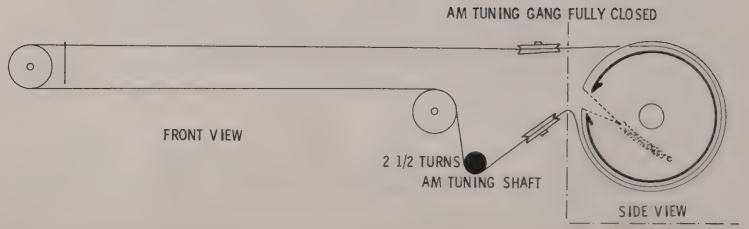
ITEM No.	PART NAME	REALISTIC PART No.	NOTES
M2	Tuning Cap.		FM, 3 Gang
M3	Tuning Cap.		AM, 3 Gang, Ant. 24-495mmf, RF 30-505mmf, Osc. 32-225mmf
M4	Switch		Function Selector (Rotary Wafer Type)
M5	Switch		AFC Off-On (DPDT, Slide Type)
M6	Switch		Power Off-On (DPDT, Slide Type)

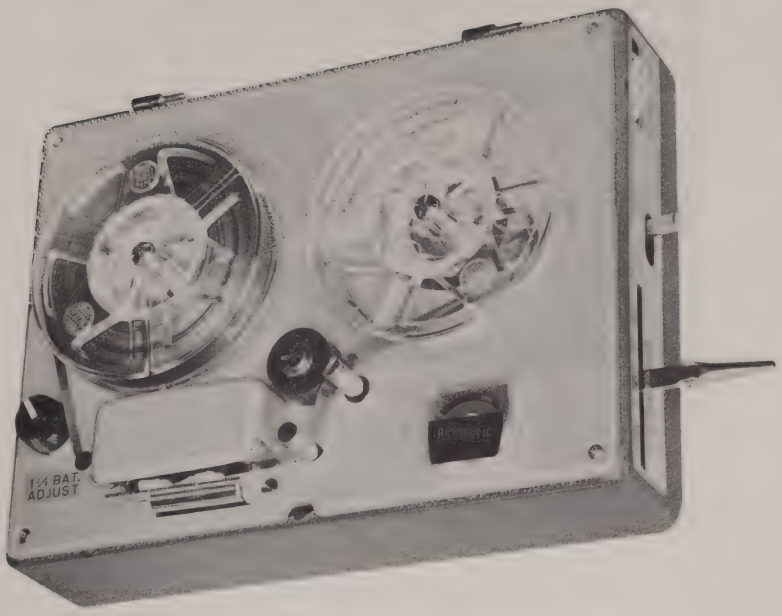
WIRING DATA

General-use Unshielded Hook-up Wire	Use BELDEN No. 8530 (Solid) Available in Ten Colors 8524 (Stranded) Available in Ten Colors
Power Cord	Use BELDEN No. 1765-B (6 Ft. Length) 1725-K (7½ Ft. Length)

DIAL CORD STRINGING







GENERAL INFORMATION

Realistic Model TR-730 tape recorders record and play back two tracks of material on standard width recording tape, thus doubling playing time of a 3" reel with no loss of frequency response or quality. Tape speeds are 1-7/8 and 3-3/4 ips.

Using both tracks of tape, recording time is as follows:

Reel Size	1-7/8" Speed	3-3/4" Speed
3"	1 hour	1/2 hour

The power supply is self-contained, consisting of one, 9-volt and eight, 1 1/2-volt batteries.

Supplied By:

Radio Shack Corporation
730 Commonwealth Avenue
Boston 17 Mass.

HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

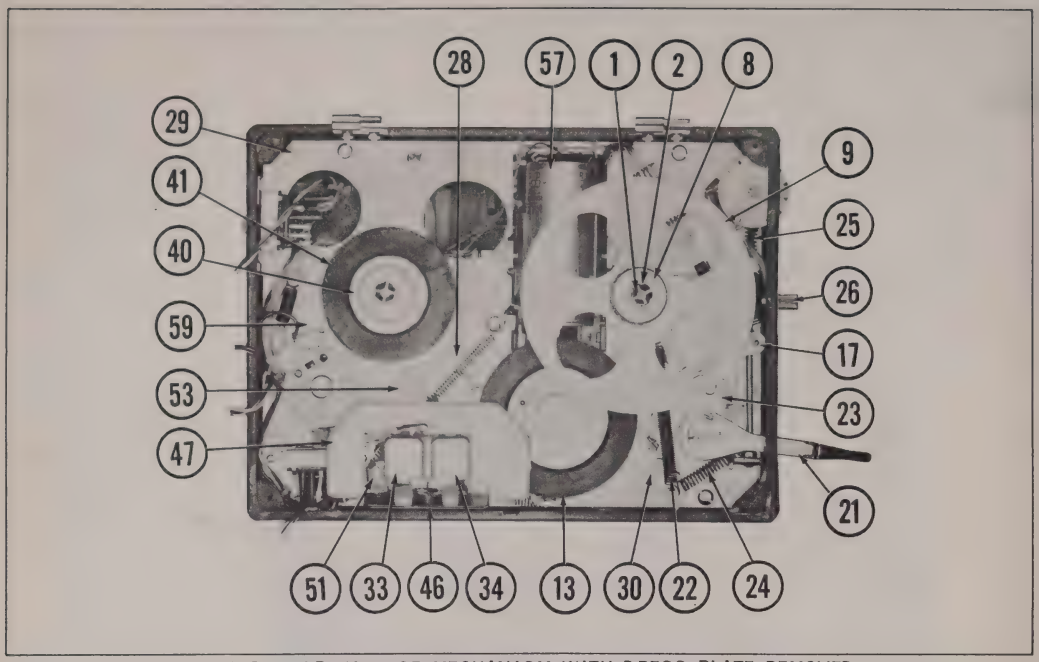


FIG.1 TOP VIEW OF MECHANISM WITH DRESS PLATE REMOVED

FUNCTION OF CONTROLS

Control Lever

The Control Lever selects the different functions of the recorder. Moving the Control Lever to the Rewind, Playback, or Record position actuates the motor circuit. The recorder is stopped by moving the Control Lever to the Stop position.

Record Safety Lever

The Record Safety Lever prevents the Control Lever from being accidentally thrown into the Record position. This lever must be pulled toward the Control Lever before the Control Lever can be moved to the Record position.

OPERATING INSTRUCTIONS

Threading Tape

1. Place a reel of tape on the left (supply) spindle and an empty reel on the right (takeup) spindle.
2. Unwind approximately 8 inches of tape from the left (supply) reel. Insert tape in tape slot between capstan and pressure roller, making sure dull side of tape faces rear of recorder (toward reels).
3. Insert free end of tape into one of the slots on the hub of the empty reel. Turn reel several times counterclockwise until tape is secured to reel and all slack is taken up between reels.

To Record From Microphone

Insert microphone into input jack marked "MIC" and earphone into jack marked "PHONES" on left end of recorder. Thread tape as described under "Threading Tape". Place earphone in ear to monitor recording level. Pull Record Safety Lever toward front of recorder and move Control Lever to Record position. Adjust Volume control to correct recording level while monitoring with earphone. Recording level should be reduced if needle of Level Meter swings into red portion of scale. Optimum recording results may be obtained by trying different settings of Volume control and microphone distance.

To Rewind Tape

To rewind tape move Control Lever to the Rewind position. To stop tape rewind, move Control Lever to the Stop position.

To Play a Recording

1. Follow instructions under "Threading Tape".
2. Move Control Lever to Playback position.
3. Adjust Volume control to desired listening level.
4. To stop tape transport, move Control Lever to

Stop position.

Erasing Recorded Material

Any recording on tape is automatically erased before a new recording is put on tape when unit is in Record. To erase a recording without putting anything on tape, follow normal recording procedure but leave microphone disconnected and Volume control at minimum.

To Edit and Splice Tape

NOTE: Since one track cannot be edited and spliced without affecting the other track, recordings to be edited should be limited to one track only.

1. Tape may be edited by cutting out unwanted portions or by joining selections into another sequence. Announcements may be inserted between selections, etc. Unused sections can be spliced for re-use.
2. For best results, cut tape at a slight diagonal, join ends with splicing tape on the glossy side. Trim off any excess width.

Dual Track Recording

One-half the tape width is recorded at a time, which results in two-track recording. This two-track operation is accomplished in the following manner:

1. After a reel of tape has been recorded and all tape wound onto the right (takeup) reel, move the Control Lever to the Stop position.
2. Remove reels from recorder; turn reels over and place full reel on left spindle.
3. Properly thread tape and proceed with recording.
4. After second track has been recorded, first track can be played without rewinding by reversing reel as described in step 2.

DISASSEMBLY

To Remove Dress Plate From Recorder

1. Remove top case cover.
2. Remove pressure roller retaining screw (3) and pressure roller (5).
3. Remove four screws (4) holding dress plate (6).
4. Remove battery adjust knob (37), control nut (38), and control washer (39).
5. Remove dress plate (6).

To Remove Head Assembly

1. Remove dress plate (6).
2. Remove two screws (44) holding head mounting plate (47).
3. Remove head assembly.

LUBRICATION

Clean all bearing and bearing surfaces with a clean soft cloth. Apply a thin film of oil on bearing surfaces.

CLEANING

Pressure roller (5), capstan shaft (32), tape guides (45) and recording head (34) may accumulate tape oxide coating, worn off the tape as it passes these parts. This accumulation will cause poor performance and should be removed with a soft lint-free cloth dipped in alcohol.

WARNING: Do not use any cleaning solvent which contains oil or Tetrachloride.

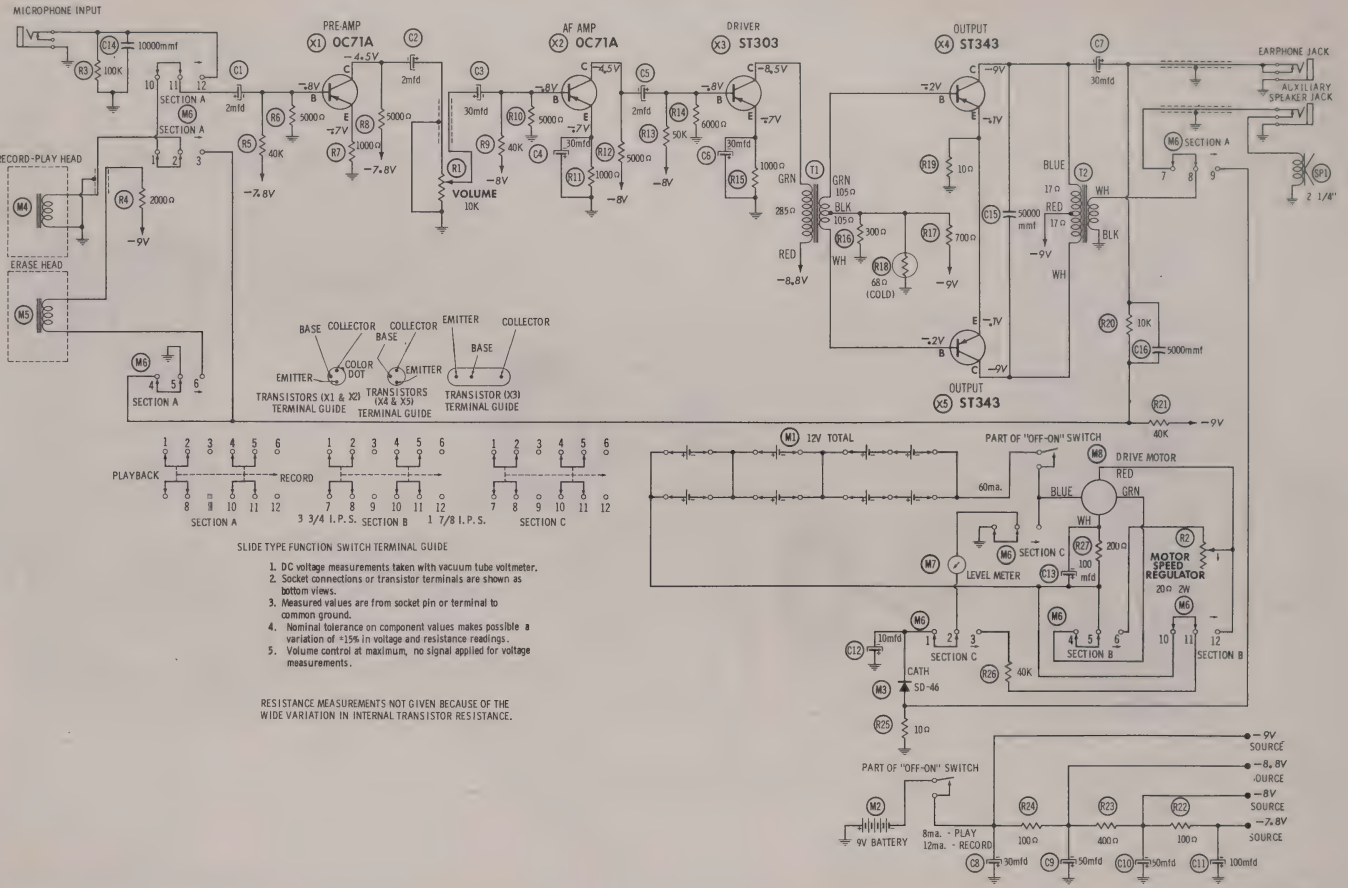
HEAD REPLACEMENT

The Record-Playback and Erase heads are removed in the same manner. Remove either head as follows:

1. Remove head assembly
2. Remove head retaining screws under head mounting plate (47).
3. Unsolder head wires.
4. Remove head.
5. To install new head, reverse above procedure.

LEVEL METER

The Level Meter shows the recording level when the Control Lever is in the Record position. When the



1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.

A PHOTOFACT STANDARD NOTATION SCHEMATIC

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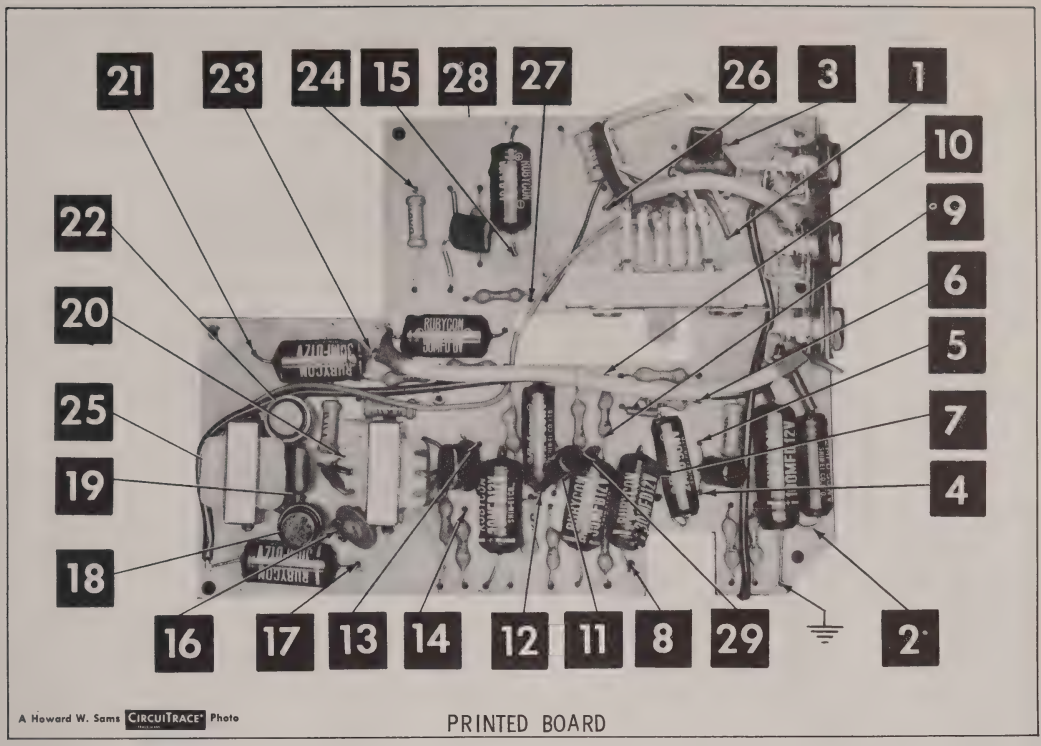
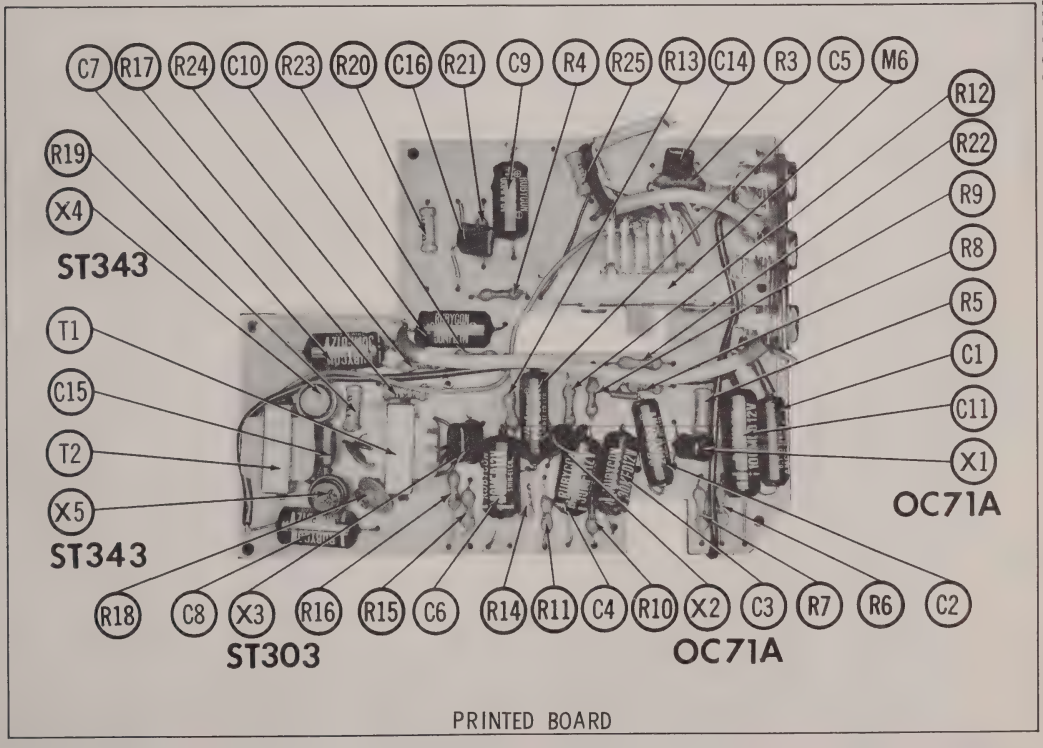
REALISTIC MODEL TR-730



PRINTED BOARD



PRINTED BOARD

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA: RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
X1	OC71A	Preamplifier				PNP
X2	OC71A	AF Amplifier				PNP
X3	ST-303	Driver				PNP
X4	ST-343	Output				PNP
X5	ST-343	Output				PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING: CAP.	RATING: VOLT.	REPLACEMENT DATA: REALISTIC PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	NOTES
C1	2	50		PTT50002	NLW2-50	TC302	ML2-50	TE-1301	
C2	2	50		PTT50002	NLW2-50	TC302	ML2-50	TE-1301	
C3	30	12		PTT12030	NLW30-15	TT15X30	MLV40-12	TE-1158	
C4	30	12		PTT12030	NLW30-15	TT15X30	MLV40-12	TE-1158	
C5	2	50		PTT50002	NLW2-50	TC302	ML2-50	TE-1301	
C6	30	12		PTT12030	NLW30-15	TT15X30	MLV40-12	TE-1158	
C7	30	12		PTT12030	NLW30-15	TT15X30	MLV40-12	TE-1158	
C8	30	12		PTT12030	NLW30-15	TT15X30	MLV40-12	TE-1158	
C9	50	6		PTT6030	NLW50-10	TT6X50	ML50-6	TE-1100	
C10	50	6		PTT6030	NLW50-10	TT6X50	ML50-6	TE-1100	
C11	100	12		PTT12100	NLW100-12	TT15X100	ML100-15	TE-1135	
C12	10	10		PTT10010	NLW10-15	TT12X10	MLV10-12	TE-1114	
C13	100	12		PTT12100	NLW100-12	TT15X100	ML100-15	TE-1135	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA: AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C14	10000		BPD-01	DD-103	BYA10S1	CCD-103	B-110	5HK-S10
C15	50000		BPD-05	DD-503	H-05S5	1DP-2-503	GP150	5HK-S50
C16	5000		BPD-005	DD-502	BYA10D5	CCD-502	B-250	5HK-D50

CONTROLS

ITEM No.	RATING: RESISTANCE	RATING: WATTS	REPLACEMENT DATA: REALISTIC PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	INSTALLATION NOTES
R1	10K	1/4						Volume
R2	20Ω	2(WW)						Motor Speed Regulator

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R3	100K	
R4	2000Ω	
R5	40K	
R6	5000Ω	
R7	1000Ω	
R8	5000Ω	
R9	40K	
R10	5000Ω	
R11	1000Ω	

ITEM No.	RATING	REMARKS
R12	5000Ω	
R13	50K	
R14	6000Ω	
R15	1000Ω	
R16	300Ω	
R17	7000Ω	
R18	68Ω Cold	
R19	10Ω	
R20	10K	

ITEM No.	RATING	REMARKS
R21	40K	
R22	100Ω	
R23	400Ω	
R24	100Ω	
R25	10Ω	
R26	40K	
R27	200Ω	

TRANSFORMER (DRIVER)

ITEM No.	TURNS RATIO: PRI.	TURNS RATIO: SEC.	REPLACEMENT DATA: REALISTIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T1	1.7	1			TA-28			

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE: PRI.	IMPEDANCE: SEC.	REPLACEMENT DATA: REALISTIC PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	NOTES
T2	160Ω CT	6-8Ω			TA-20①			① Use 12Ω Secondary.

SPEAKER

ITEM No.	TYPE: SIZE	TYPE: FIELD	TYPE: V. C. IMP.	REPLACEMENT DATA: REALISTIC PART No.	QUAM PART No.	NOTES
SP1	2 1/4"	PM	6-8Ω			

BATTERIES

ITEM No.	VOLTAGE	REALISTIC PART No.	REPLACEMENT DATA: BURGESS "A"	BURGESS "B"	EVEREADY "A"	EVEREADY "B"	MALLORY "A"	MALLORY "B"	NOTES
M1	1½V			930 *		1015 *		M-14R *	* 8 Required, 6V Total (Motor)
M2	9V			2U6		216		M-1604	(Amplifier)

CRYSTAL DIODES

ITEM No.	ORIG. TYPE	REPLACEMENT DATA: REALISTIC PART No.	RAYTHEON PART No.	SYLVANIA PART No.	NOTES
M3	SD-46		1N60	1N60	Record Level Rect. (Pigtail)

MISCELLANEOUS

ITEM No.	PART NAME	REALISTIC PART No.	NOTES
M4	Head		Recording - Playback
M5	Head		Erase
M6	Switch		Function (Slide Type)
M7	Meter		Level
M8	Motor		Drive

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

Power Cord ..... Use BELDEN No. 1765-B (6 Ft. Length)
1725-K (7½ Ft. Length)

Low-Loss Shielded Lead (Interconnecting) ..... Use BELDEN No. 8401

Phono Pick-up Arm Cable ..... Use BELDEN No. 8430 (Two Conductor - Twisted)

PHOTOFACT® Folder with CIRCUITRACE®

SYLVANIA
MODEL 4P14 (Ch. 661-1)

SYLVANIA
MODEL 4P14 (Ch. 661-1)

TRADE NAME	Sylvania Model 4P14 (CH. 661-1)
MANUFACTURER	Sylvania Home Electronics, Sylvania Electric Products, Inc., 700 Ellicott Street, Batavia, N. Y.
TYPE SET	Battery Operated Transistorized Portable AM Receiver
POWER SUPPLY	9 Volts DC
TUNING RANGE—BROADCAST	540 — 1650KC RATING 22 MA @ 9 Volts DC

SYLVANIA
MODEL 4P14 (Ch. 661-1)

ALIGNMENT INSTRUCTIONS

ALIGNMENT INSTRUCTIONS—READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

Volume control should be at maximum position. Output of signal generator should be no higher than necessary to obtain an output reading.

Suggested Alignment Tools: A1, A2, A3... GENERAL CEMENT #5009, 8195, 8274, 8275, 8728, 8729, 8987, 8988, 8989
WALSCO #2515, 2531, 2532
A4, A5..... GENERAL CEMENT #5004, 5009, 8195, 8274, 8275, 8607, 8728, 8987, 8988, 8989, 9291
WALSCO #2515, 2520, 2522, 2523, 2531, 2532, 2534, 2537, 2538

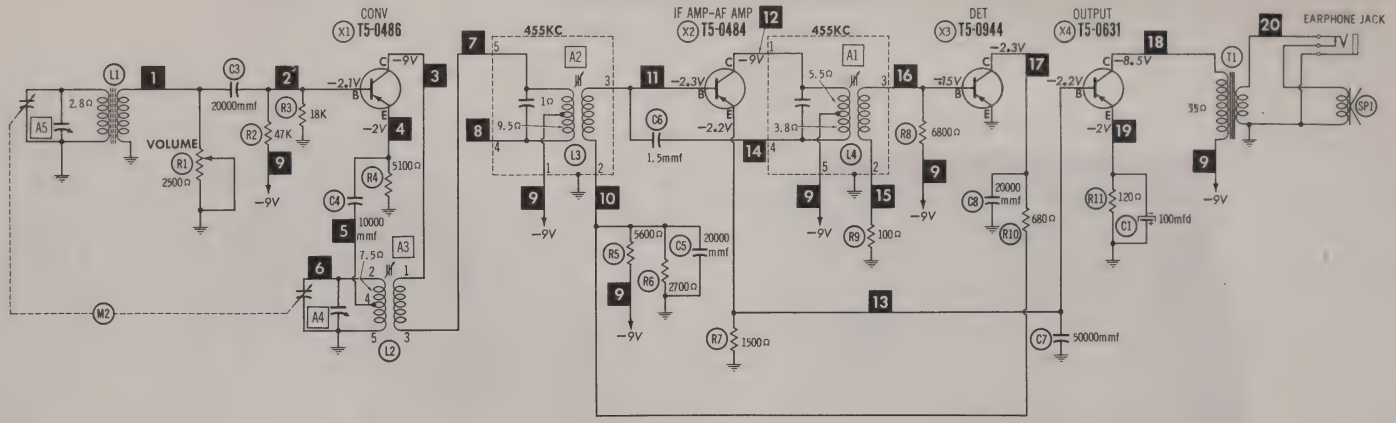
	SIGNAL GENERATOR COUPLING	SIGNAL GENERATOR FREQUENCY	RADIO DIAL SETTING	OUTPUT METER	ADJUST	REMARKS
1.	Loop	455KC (400∿ Mod.)	Tuning gang fully open.	Across voice coil.	A1, A2,	Fashion loop of several turns of wire and radiate signal into loop of receiver. Adjust for maximum output.
2.	"	600KC	600KC	"	A3	"
3.	"	1650KC	1650KC	"	A4	"
4.	"	1400KC	1400KC	"	A5	"

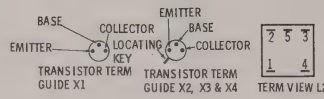
HOWARD W. SAMS & CO., INC. Indianapolis 6, Indiana

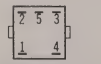
The listing of any available replacement part herein does not constitute in any case a recommendation, warranty or guaranty by Howard W. Sams & Co., Inc., as to the quality and suitability of such replacement part. The numbers of these parts have been compiled from information furnished to Howard W. Sams & Co., Inc., by the manufacturers of KF261

the particular type of replacement part listed. Reproduction or use, without express permission, of editorial or pictorial content, in any manner, is prohibited. No patent liability is assumed with respect to the use of the information contained herein. © 1961 Howard W. Sams & Co., Inc., Indianapolis 6, Indiana. Printed in U.S. of America

SET 513 FOLDER 15



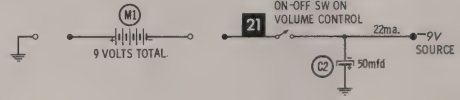




1. DC voltage measurements taken with vacuum tube voltmeter.
2. Socket connections or transistor terminals are shown as bottom views.
3. Measured values are from socket pin or terminal to common ground.
4. Nominal tolerance on component values makes possible a variation of ±15% in voltage and resistance readings.
5. Volume control at maximum, no signal applied for voltage measurements.

NUMBERS ASSIGNED TO COILS, SWITCHES, PLUGS, SOCKETS, AND TRANSFORMERS ARE TO FACILITATE CIRCUIT TRACING OR COMPONENT REPLACEMENT AND MAY NOT NECESSARILY BE FOUND ON THE UNIT.

RESISTANCE MEASUREMENTS NOT GIVEN BECAUSE OF THE WIDE VARIATION IN INTERNAL TRANSISTOR RESISTANCE.



A PHOTOFACT STANDARD NOTATION SCHEMATIC
with CIRCUITRACE

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SYLVANIA
MODEL 4P14 (Ch. 661-1)

PARTS LIST AND DESCRIPTIONS

TRANSISTORS

ITEM No.	ORIG. TYPE	USE	REPLACEMENT DATA			NOTES
			RCA PART No.	RAYTHEON PART No.	SYLVANIA PART No.	
X1	T5-0486	Converter		T5-0486		PNP
X2	T5-0484	IF Amp. -AF Amp.		T5-0484A		PNP
X3	T5-0944	Detector	2N410	T5-0944		PNP
X4	T5-0631	Output	2N408	T5-0631		PNP

ELECTROLYTIC CAPACITORS

ITEM No.	RATING		REPLACEMENT DATA						NOTES
	CAP.	VOLT.	SYLVANIA PART No.	AEROVOX PART No.	CORNELL-DUBILIER PART No.	MALLORY PART No.	PYRAMID PART No.	SPRAGUE PART No.	
C1	100	10	161-1070	PTT10100	NLW100-10	TT15X100	ML100-15	TE-1119.3	
C2	50	10	161-1039	PTT10050	NLW50-10	TT15X50	ML50-15	TE-1119	

FIXED CAPACITORS

Capacity values given in the rating column are in mfd. for Paper Capacitors, and in mmfd. for Mica and Ceramic Capacitors.

ITEM No.	RATING	REMARKS	REPLACEMENT DATA					
			AEROVOX PART No.	CENTRALAB PART No.	CORNELL-DUBILIER PART No.	ELMENCO PART No.	MALLORY PART No.	SPRAGUE PART No.
C3	20000		BPD-02	DD-203	H-05S2	CCD-203	GP120	5GA-S20
C4	10000		BPD-01	DD-103	H-05S1	CCD-103	GP110	5GA-S10
C5	20000		BPD-02	DD-203	H-05S2	CCD-203	GP120	5GA-S20
C6	1.5		NPO-SI 1.5	TCZ-1R5	C10V15C		CNO-515	10TCC-V15
C7	50000		BPD-05	DD-503	H-05S5		GP150	5HK-S50
C8	20000		BPD-02	DD-203	H-05S2	CCD-203	GP120	5GA-S20

CONTROLS

ITEM No.	RATING		REPLACEMENT DATA					INSTALLATION NOTES
	RESISTANCE	WATTS	SYLVANIA PART No.	CENTRALAB PART No.	CLAROSTAT PART No.	CTS-IRC PART No.	MALLORY PART No.	
R1	2500Ω	½	152-0062					Volume & Switch

RESISTORS (IRC or EQUIVALENT)

All wattages 1/2 watt, or less, unless otherwise listed.

ITEM No.	RATING	REMARKS
R2	47K	
R3	18K	
R4	5100Ω	
R5	5600Ω	

ITEM No.	RATING	REMARKS
R6	2700Ω	
R7	1500Ω	
R8	6800Ω	
R9	100Ω	

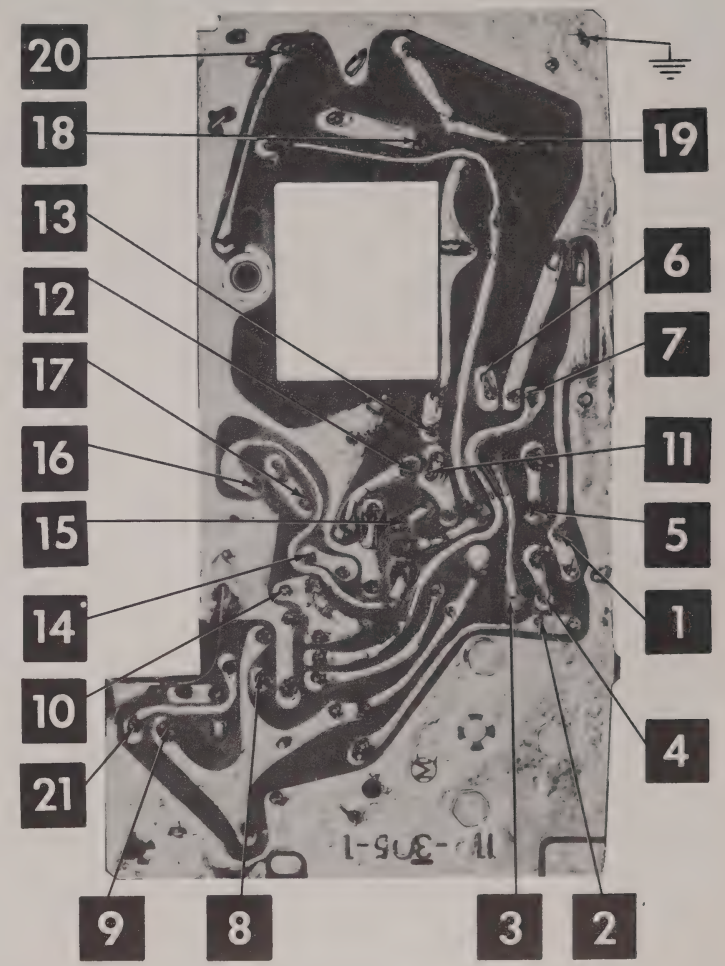
ITEM No.	RATING	REMARKS
R10	680Ω	
R11	120Ω	

COILS (RF-IF)

ITEM No.	USE	REPLACEMENT DATA				NOTES
		SYLVANIA PART No.	Merit PART No.	Miller PART No.	Stancor PART No.	
L1	Loopstick	581-0028				
L2	Osc. Coil	113-0047				
L3	Input IF Trans.	121-0037				
L4	Output IF Trans.	122-0041				

PRINTED BOARD

A Howard W. Sams CIRCUITRACE® Photo



PARTS LIST AND DESCRIPTIONS (Continued)

TRANSFORMER (AUDIO OUTPUT)

ITEM No.	IMPEDANCE		REPLACEMENT DATA					NOTES
	PRI.	SEC.	SYLVANIA PART No.	Merit PART No.	Stancor PART No.	Thordarson PART No.	Triad PART No.	
T1	1000Ω	3-4Ω	143-0101					

SPEAKER

ITEM No.	TYPE			REPLACEMENT DATA		NOTES
	SIZE	FIELD	V. C. IMP.	SYLVANIA PART No.	QUAM PART No.	
SP1	3½"	PM	3-4Ω	539-0353		

BATTERIES

ITEM No.	VOLTAGE	SYLVANIA PART No.	REPLACEMENT DATA						NOTES
			BURGESS		EVEREADY		MALLORY		
			"A"	"B"	"A"	"B"	"A"	"B"	
M1	9V			P6		2709		M-1600	

MISCELLANEOUS

ITEM No.	PART NAME	SYLVANIA PART No.	NOTES
M2	Tuning Cap.	170-0025	2 Gang

CABINETS & CABINET PARTS

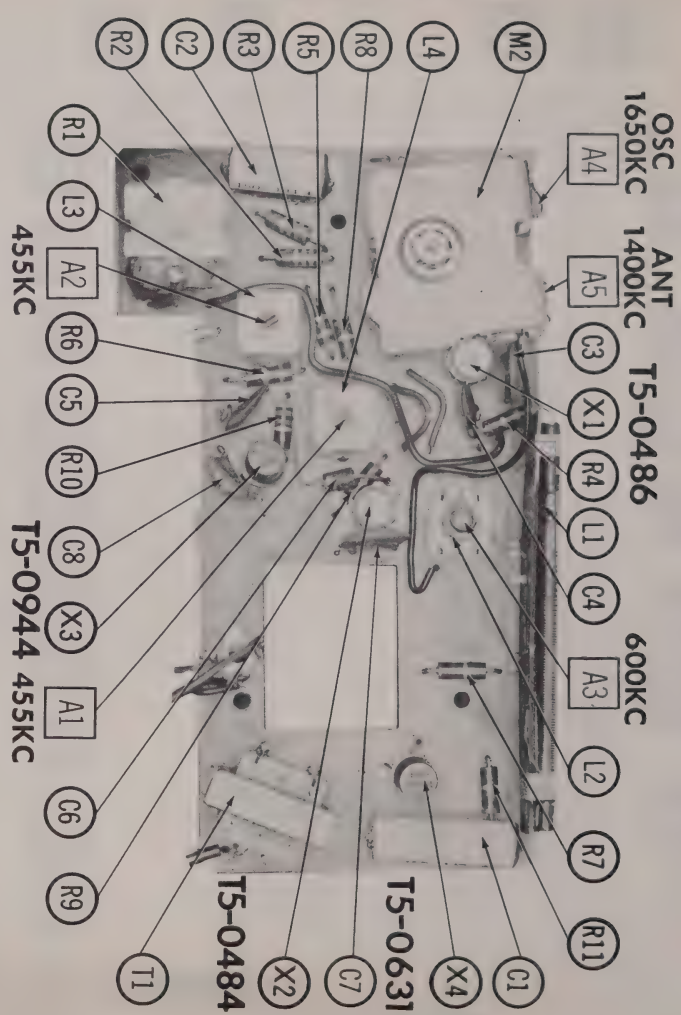
(When Ordering Cabinets & Cabinet Parts, Specify Model, Chassis & Color)

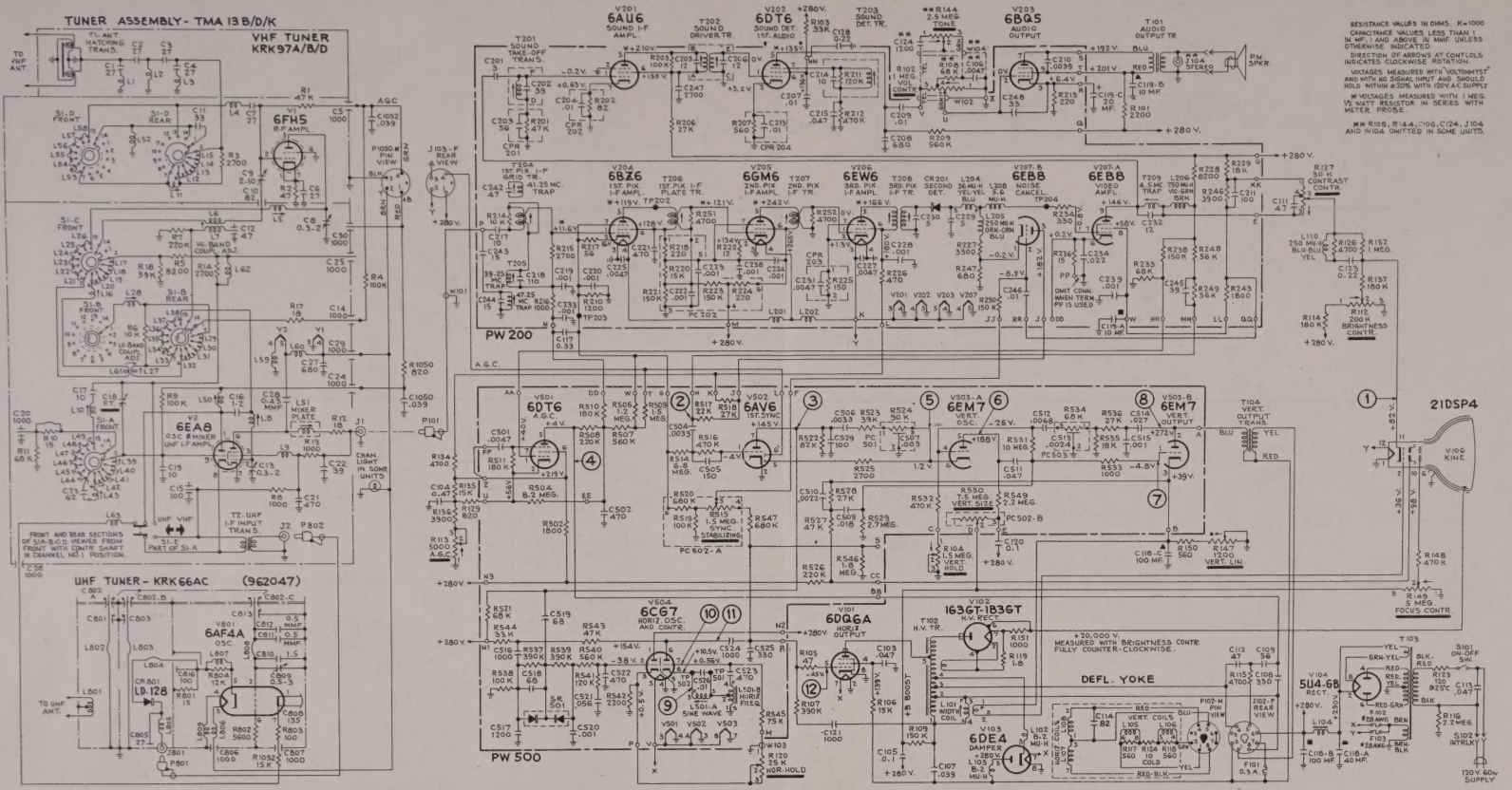
NAME	PART NO.	DESCRIPTION
Dial Glass	489-0035	
Knob	741-0049	Tuning
Knob	742-0043	Volume, Blue
Knob	742-0044	Volume, Red
Cabinet Back	822-0119	Blue
Cabinet Back	822-0120	Red
Cabinet Front	822-0071	Blue
Cabinet Front	822-0073	White

WIRING DATA

General-use Unshielded Hook-up Wire ..... Use BELDEN No. 8530 (Solid) Available in Ten Colors
8524 (Stranded) Available in Ten Colors

CHASSIS—TOP VIEW

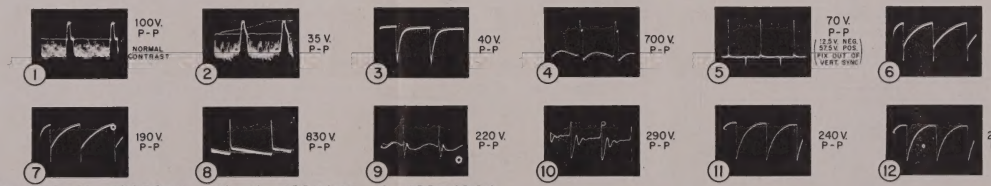




All voltages measured with "Volt-Ohmyst" and with no signal input. Voltages should hold within ±20% with 120v. a-c supply.

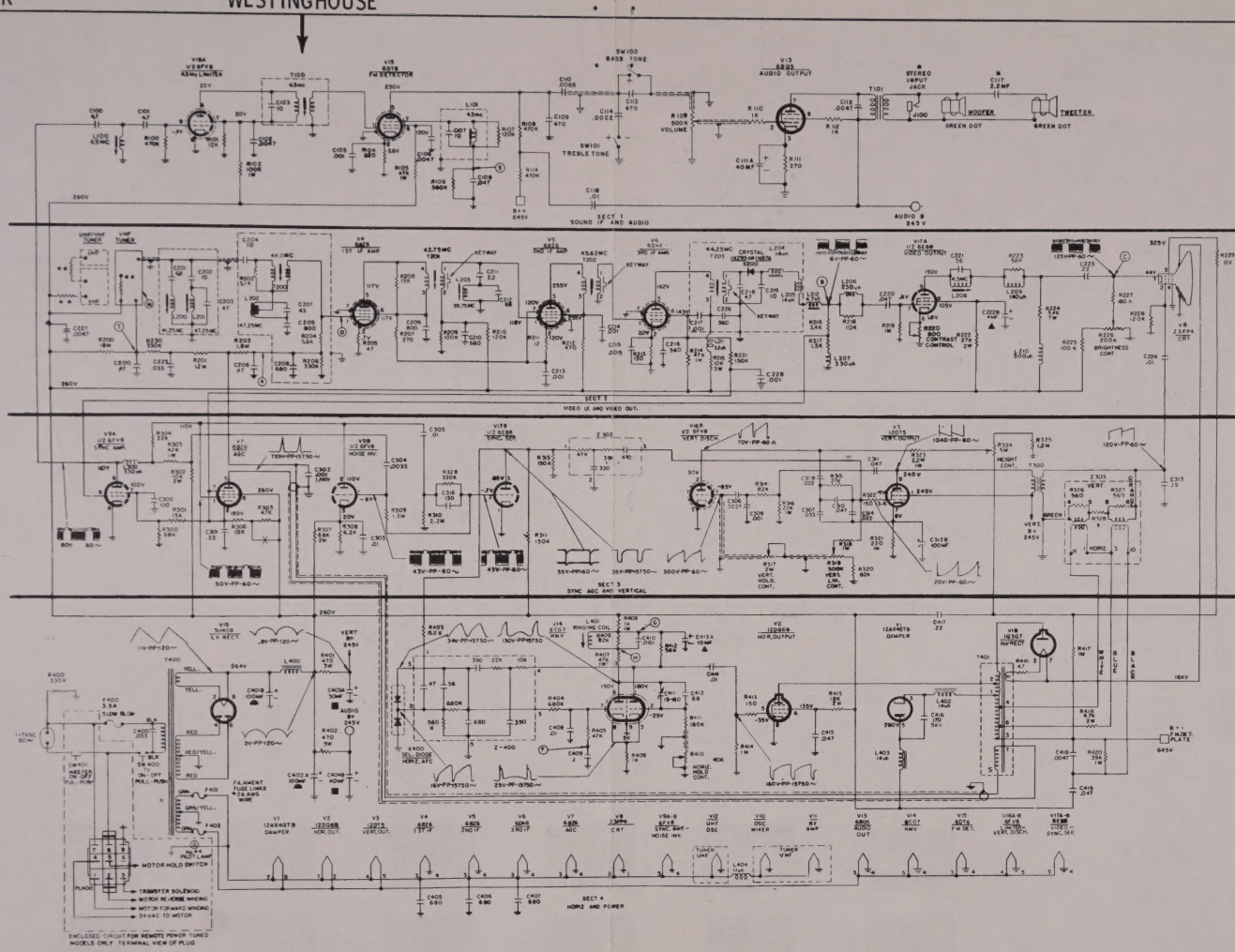
*Measured with 1 megohm, ½ watt resistor in series with meter probe.

Balloons (2) etc., shown on schematics indicate points of observation of the waveforms shown below the schematic.


1 100V. P-P NORMAL CONTRAST
2 35 V. P-P
3 40V. P-P
4 700 V. P-P
5 70 V. P-P (25V NEG. 575V POS. FIX OUT OF VERT. SYNC)
6 190V. P-P
7 190V. P-P
8 830V. P-P
9 220V. P-P
10 290V. P-P
11 240V. P-P
12 200V. P-P

RCA VICTOR MODELS 211B312, SU, U, 211B325, SU, U, 211B326, SU, U, 211B327, U, 211D40C4, 211D405, 211D406, SU, U, 211D407, 211D409, 211D485, 211D486, 211D487, 211D505, SU, U, 211D506, SU, U, 211D507, SU, U (CH. KCS131C, D, E, T, U, W, ZD, ZE, ZF)

Schematic Diagram Courtesy of Radio Corporation of America



WESTINGHOUSE MODELS H-K4410, H-K4411, H-K4412, H-K4413, H-K4511, H-K4512, H-K4513, H-K4514, H-K4515, H-K4910, U, H-K4911, U, H-K4912, U, H-K4913, U (CH, V-2389-1, -2, -3)

Schematic Diagram Courtesy of Westinghouse Electric Corporation

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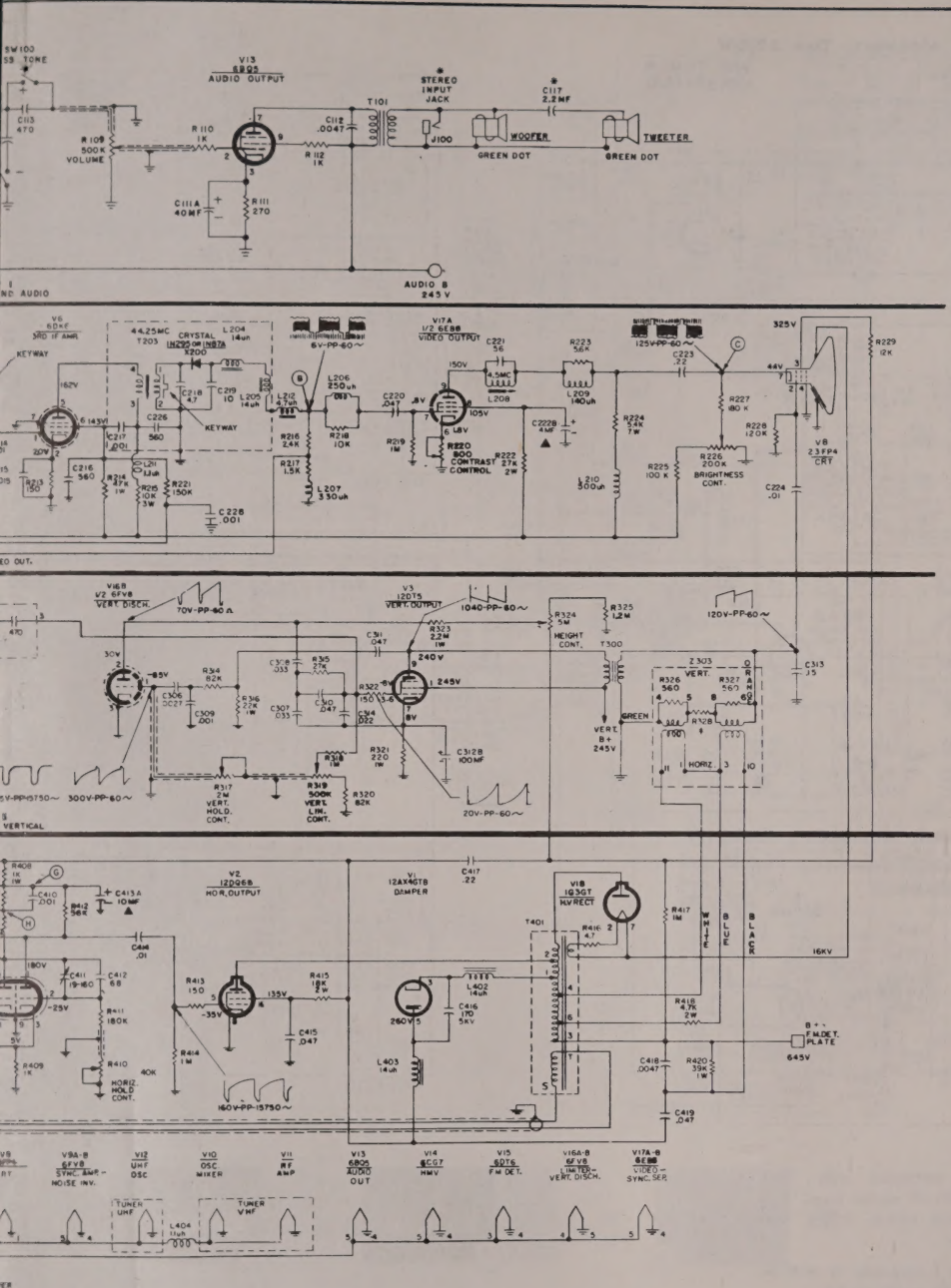

512, H-K4513, H-K4514,
-3)

Schematic Diagram Courtesy of Westinghouse Electric Corporation